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# The Nebraska State Medical Journal

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# SURGICAL CONSIDERATIONS AND COMPLICATIONS IN GALLBLADDER DISEASE*

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In the approach to a discussion of surgical considerations of the gallbladder, it is of interest to inquire into the purpose of surgical intervention. Excluding malignancy, there are, in the majority of cases, two pathological processes which may demand a surgical attack. These are infection and stones, and may appear alone or in conjunction.

In dealing with infections in general, the choice of operation may be drainage, or an attempt to remove the source of infection, perhaps the entire infected area, depending upon drainage to clear up the remaining pathology. In infections of the gallbladder, we also have this choice of drainage or removal of the infected focus by the operations of cholecystotomy or cholecystectomy. Naturally, there exists the controversy as to whether the gallbladder is the primary focus and the liver secondary, or vice versa, but without entering into this controversy, it seems from the clinical aspect as though the removal of infection in the gallbladder breaks up a vicious cycle, whether it be primary or secondary. We are aware that drainage of a hollow viscus does not remove the infection in the elastic muscular wall with satisfactory permanent results, yet in certain exigencies this procedure may be warranted because of its simplicity. However, time and experience have proved that secondary operations are frequently necessary following cholecystostomy. Cholecystectomy has, therefore, become the operation of choice in gallbladder disease except in the instance cited above and to which later reference will be made. If stone is present, it is usual to find concomitant infection, or if, as occasionally occurs, the stone is present without infection, the cause behind the formation of the stone, such as hypercholesterolemia, may still be present or the stone have encouraged and invited infection. In either case, cholecystectomy should be the operation of choice since it removes that wide surface area of the biliary tract where stones are most prone to develop.

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*Delivered before the Sixth Councilor District, Shelby, Nebr., April 11th, 1934.

For the sake of brevity, I will attempt to discuss surgical conditions and choice of procedure in acute cholecystitis, chronic cholecystitis and the problem of cholelithiasis involving structures proximal to the junction of the cystic duct with the neck of the gallbladder.

In acute cholecystitis, with or without stones, I believe it is the consensus of opinion that surgery is rarely indicated unless the symptoms are progressing to a more serious condition than simple inflammation, as indicated by the failure of the symptoms and physical signs to subside, an increase in temperature, a change in the white blood count, especially an increase of non-segmented neutrophiles in the Schilling count, with increased rigidity and peritoneal irritation by the spread of the disease. In such instances surgery is probably indicated. There is the choice of doing a simple drainage of the gallbladder, which may or may not demand later removal of this diseased organ, and in many instances it does demand a secondary operation, or removal of the gallbladder. This will depend somewhat, but certainly not entirely, upon the experience and adaptability of the surgeon to the circumstances, but if any doubt exists probably cholecystostomy is the operation of choice and later removal of the gallbladder may be considered. However, if the gallbladder is fairly thick walled, easily isolated, and the conditions favorable, and if it is seen that cholecystectomy may be carried out easily because of the easy separation of the edematous tissues from the liver without too much difficulty in the ligation of the cystic duct and artery, this operation may be carried out. This question has not definitely been settled even by surgeons of wide experience and students of gallbladder disease. Empyema of the gallbladder may be drained, or, as has not infrequently been my experience, the gallbladder may be completely removed without apparent increase of mortality. If the patient is particularly toxic and difficulties are early encountered in the separation and exposure of the gallbladder, simple drainage of the gallbladder would probably be the operation of choice. In gangrene of the gallbladder, I believe the gallbladder, or at least the gangrenous portion, should be removed because of the extreme toxicity of the condition, unless it should be particularly walled off, when simple drainage would suffice and give us a live patient. It has always appeared to me that in operating for acute cholecystitis, a particular attempt should be made to determine whether or not a stone is impacted in the cystic duct and if such is present, attempt should be made at removal. Otherwise, a mucus draining tract will result, and if this is permitted to close, frequently abscess will develop and with each abscess it becomes more difficult to isolate the contained stone.

The indications for surgery in chronic cholecystitis are more definite as regards the selection of cholecystostomy or cholecystectomy. Long ago, cholecystostomy proved its inefficacy and futility. Naturally, it is true that some good results have occurred in gallbladder lesions where simple drainage has been carried out but as the operation of choice it has duly lost its popularity and should only be carried out in those cases which present a delicate condition or mechanical difficulties. It is felt that cholecystectomy is advisable in chronic cholecystitis when the patient has presented repeated symptoms of upper abdominal pain, especially on the right side or in the mid-line with or without referred pain in the back or shoulder regions, accompanied by abdominal distention and gaseous eructations with or without nausea and vomiting, idiosyncrasies to fatty foods and rich carbohydrates, and not infrequently with the picture of constipation, and when these symptoms are sustained by the evidence of cholecystography and thorough investigation has failed to present other lesions which might account for the clinical picture. I have, on a number of occasions, seen these doubtful gallbladder cases placed upon a Sippy diet with milk, cream and eggs, and usually the symptoms have been aggravated. To me this represents definite gallbladder disease. In general, it might be mentioned that x-rays of the gallbladder do not definitely rule out or establish the diagnosis of chronic cholecystitis and the history may be the deciding factor, yet in other instances the history plus the x-rays may be the deciding factor for or against operation. Stone in the gallbladder may give typical symptoms of colic similar to stone in the common duct but without jaundice. Before making the surgical attack, one should, at least in his own mind, sufficiently review and analyze the patient's symptoms as to the possibility and probability of stones in the biliary ducts. However, such conclusions should not be definite and unsatisfactory results will frequently present themselves unless adequate exploration of the hepatic and common ducts and the junction of the cystic duct with the common duct is made. A rather perplexing problem that presents itself at times is the one wherein exploration of the abdomen after incision proves negative and the gallbladder appears of a normal slate blue or greenish hue with no palpable stones. This is baffling, but it has been proved that if a detailed history has been taken, if diagnostic procedures have ruled out other pathological conditions, if the condition has not been relieved by proper medical measures, and if the extra-biliary exploratory has been negative, the gallbladder should be removed as pathological studies by various writers and the clinical improvement which follows in such cases justifies its removal in spite of the appearance. Lahey states this problem well in the following words, "If because of the normal appearing gallbladder, cholecystectomy is not done and then the symptoms persist, how may we say that the remaining gallbladder is still not the cause of the symptoms?"

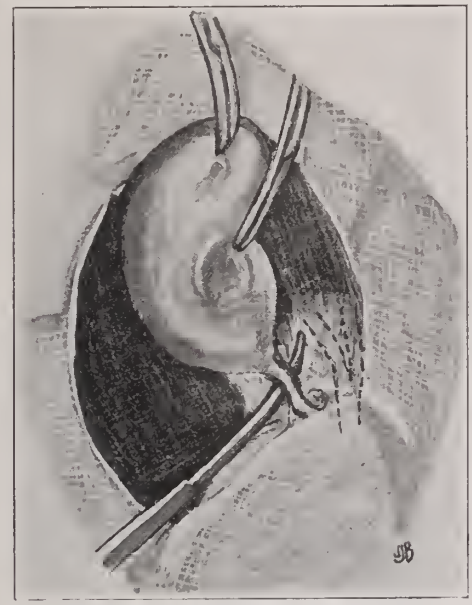

Fig. I. Using a special blunt pointed groove directing instrument, the cystic duct is isolated, ligated and severed between the clamp and the ligature.

In the third group of cases, cholelithiasis with stone present in the hepatic or common duct or at the junction of the cystic duct with the common duct, a few remarks regarding stone are both of academic and clinical interest. Stones may be classified into those associated with cholesterol dysfunction and consisting of cholesterol with its characteristic canary yellow or whitish-yellow appearance, and the pigment calculi usually associated with infection. These stones do not always appear in their pure form, and calcium may or may not be present. The former may be associated with such conditions as a tendency toward hypercholesterolemia, as found in diabetes, pregnancy, jaundice, adiposity, and the increase of blood cholesteral in weight reduction procedures. Stones are not only a fascinating study but are a definite problem and probably account for most of the unsatisfactory results in gallbladder disease. No stone in gallbladder can be present without potential danger. Multiple pea sized stones, rough or smooth, within the gallbladder should always make one suspicious and arouse curiosity as to their presence in the common or hepatic ducts. It is believed that less danger may result from the larger stones, particularly if there are only two or three present, as they will not descend into the common duct. Yet not infrequently, empyema or gangrene has occurred in such conditions and only as recently as 1933. I had the opportunity to successfully remove a stone almost as large as a golf ball from the terminal ileum where it had caused complete obstruction. Stones near the junction of the cystic and common ducts not infrequently present

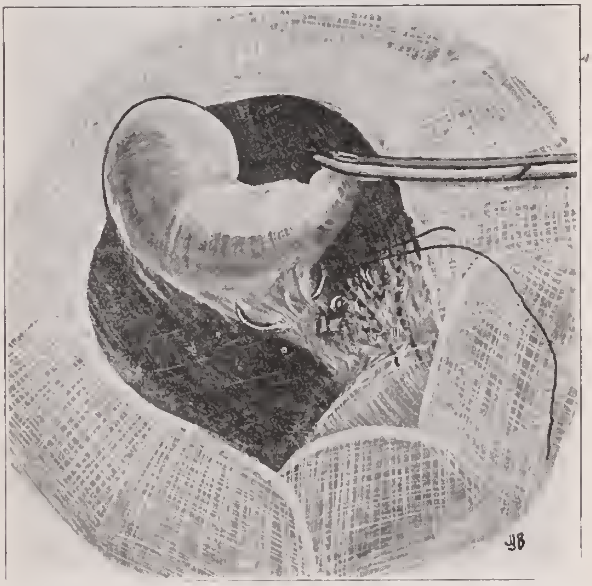

Fig. II. The cystic vessels are then separately ligated, using a blunt small curved needle which enters well into the fascial, mesenteric-like tissue attaching the gallbladder to the liver.

a difficult problem. If the stone cannot be delivered back into the gallbladder, the cystic duct should be opened to its junction with the common duct and the stone delivered, and it is my custom to then fix a catheter into the stump of the cystic duct. If stones are present in the hepatic duct, care should be taken not to displace these up into the liver, but adequate exposure should be made and the stones delivered either through the wide open cystic duct or by direct incision over the stone, or they should be milked down into the common duct. Stones in the common duct can usually be removed by direct choledochotomy. When the common duct has been opened, duct drainage should be established. This may be carried out by a catheter fixed and directed upward into the common duct, or one catheter directed upward and another downward as advocated by Moynihan, or the T tube may be used.

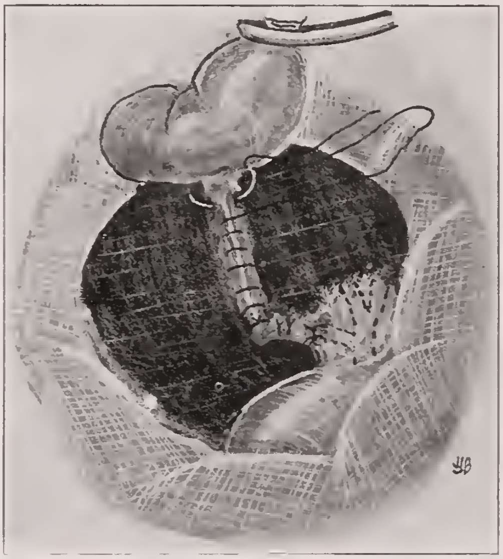

Fig. III. The gallbladder in the process of being dissected out from the liver bed, followed by approximation of the serosal edges.

If jaundice is an associated condition, the differential diagnosis as to the cause of the obstruction is notably difficult. Moynihan states, "No one living is infallible in the differential diagnosis of obstructive jaundice. The diagnosis is always difficult and the chance of a life saved so important that I advise operation in all cases." This should not be interpreted that an immediate emergency procedure is indicated, but careful consideration and preparation should be made. Catarrhal or hepatic jaundice must be ruled out. In painless and progressive jaundice with dilation of the gallbladder, malignancy near the distal end of the common duct is most probable and cholecystogastrostomy or cholecystoduodenostomy is indicated. Presence of a stone demands its removal followed by direct biliary drainage many times a formidable procedure. Stricture of the common duct is a problem in itself.

To drain or not to drain is a gallbladder problem that has not been definitely settled. In simple cholecystectomy without technical difficulties or pronounced pericholecystitis and where the gallbladder has not been ruptured in its removal, it is probably just as safe to close the abdomen without drainage. If there have been technical difficulties, especially rupture of the gallbladder during its removal or incomplete or difficult closure of the gallbladder bed in the liver, or if it is necessary to open the biliary ducts, drainage with a Penrose inserted and coming out through a small stab wound incision to the right of the right rectus incision is the usual procedure.

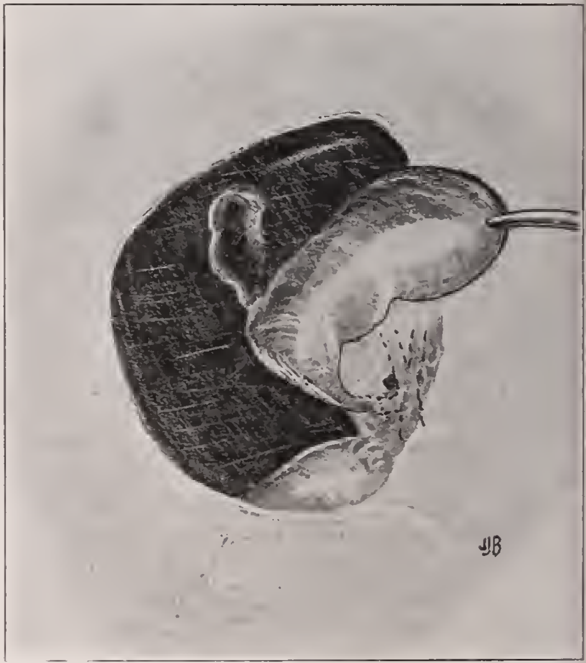

Fig. IV. Occasionally it is advisable to begin the dissection from the fundus of the gallbladder, lastly ligating the cystic vessels and duct.

Technically removal of the gallbladder may be a rather simple procedure, yet in some instances may be the most difficult experience in surgery. Hemorrhage during the operation and the blind grasping of the bleeding point may result in clamping or ligating the common or hepatic ducts. Hemorrhage during or following operation, particularly in jaundiced cases, is always a major problem. In ligating the cystic duct one must take care not to ligate too close to the common duct or injure the common duct in any way or stricture may develop. The management of this complication is a story to itself and it tests the ability of any surgeon.

In the pre- and postoperative management of gallbladder surgery, too much emphasis cannot be placed upon the adequate supply of glucose for the liver. It must be given freely by hypodermoclysis or intravenously and I have found it also advantageous to feed glucose in some form or other rather liberally for a day or so before operation because following operation abdominal distention and its complications are less likely to appear and be of less serious consequence if the gastrointestinal tract is put to rest for twenty-four hours or more, especially in more complicated cases. Hypo-acidity is not infrequently present in diseases of the gallbladder and following operation these patients will at times have difficulty with so-called 'heart burn' with return of increasing acidity and must be handled accordingly with alkalis. If the distress is considerable irrigation of the stomach with a small tube will give relief.

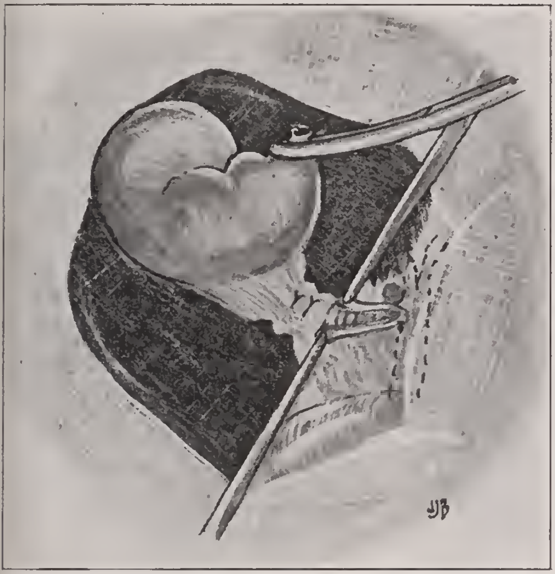

Fig. V. When stones are imbedded in the proximal portion of the cystic duct or it is desirable to explore the common duct through the cystic duct, it is isolated and grasped with small forceps. The cystic vessels are separately ligated and the duct exploration carried out before complete removal of the gallbladder.

Following the observations of Luders and Scherer of Philadelphia, I have noticed that gastric hypo-acidity is associated with acute diseases of the biliary tract and with uncomplicated cholelithiasis either of short or long duration.

Removal of the appendix is a routine procedure with cholecystectomy. Patients after operation on the biliary tract cannot be exposed to immediate return to the normal digestive functions. Previous to operation there has usually been a long chronic insult and the operative procedure has added acute insult. Weeks and sometimes a number of months are required before normal reflexes and the secretory mechanism compensates itself or returns to normal. Therefore, these patients must be somewhat restricted in their diet, avoiding those foods and conditions which caused the onset of symptoms previous to operation. It is probably wise in most instances to handle these cases as one would in the medical management of gallbladder disease until complete recovery has been made.

Unsatisfactory results may be divided into four groups. In the first group we have those in which an incomplete operation has been performed, such as incomplete removal of the gallbladder or incomplete removal of the stones. The second group comprises those cases where there has been an injury to the common or hepatic duct, postoperative hernia, and the operative deaths. Mortality should be under 5%. The third group includes those patients who have concomitant gastro-intestinal disorders such as colon disorders, peptic ulcer, disturbances of gastric secretions or pelvic disease, or those who have waited too long before removal of the gallbladder which has resulted in a damaged liver and nature is not able to set up compensatory mechanism. The fourth group includes those cases in which the diagnosis was probably incorrect and the removal of the gallbladder has naturally not relieved them of their symptoms.

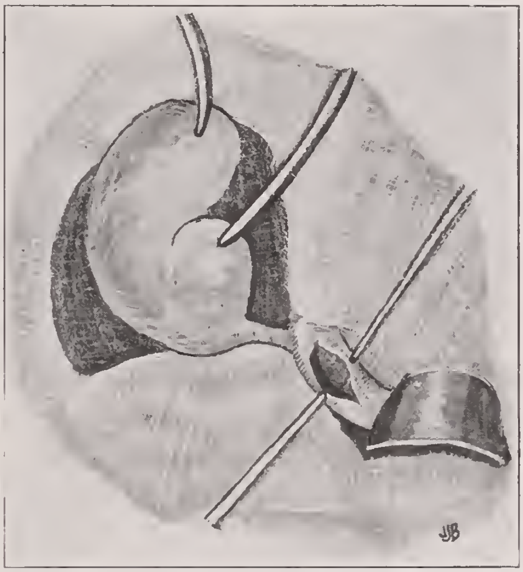

Fig. VI. Where it is desirable to carry out common duct exploration it is well to open the duct before removal of the gallbladder because of better exposure allowed by using the gallbladder as a point of traction. Common duct which has been opened should always be drained with the catheter fastened within the duct.

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The beer tax is the closest we have come to a tax with its own anesthetic. — San Francisco Chronicle.

# APPENDICITIS, COMPLICATED BY THROMBOPHLEBITIS OF THE MESENTERIC VEINS WITH ABSCESSES—A CASE REPORT

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A male, single, twenty-four years old, laborer, living at home with father and mother; family and past history negative.

Present Illness:

Perfectly well until after working most of the day March 20, 1934, with a steel drill which he held against his lower chest and abdomen. The next day he had some abdominal pain, and this continued with some nausea for the next two days. He felt some better for the following two days. He then took a large dose of castor oil with free catharsis, but with increased lower abdominal pain and possibly a chill and fever in the night. On the fifth day of his illness he was first seen by me.

Physical Examination:

Physical examination revealed a robust young man up and about but favoring his lower right abdomen when walking. There was well localized pain in the lower right quadrant of the abdomen but no definite muscle rigidity. His temperature was 98 degrees and pulse 88.

I advised an immediate removal of the appendix, but this was refused as they felt quite sure his condition was just a soreness from the trauma in the use of the drill. While waiting for them to come to a favorable decision I suggested only water by mouth, no laxative, and an ice bag to the lower abdomen. I saw him the next day at noon, when there was little change in his condition or the physical findings, except for a temperature of 101 degrees and pulse 100 and W.B.C. of 16000. I spent considerable time trying to convince them of the necessity of an immediate operation, but the father said, "No we will let him lie for another twenty-four hours." Instead he called an old physician friend who informed them that the boy already had an abscess and should be operated. They took him to the hospital at 6 p. m. at which time his temperature was 102 degrees, pulse 120, and W.B.C. of 22,600, and 82% Polys.

First Operation:

I operated at 7:15 p. m. and found a small amount of free fluid in the abdomen, the intestines markedly injected, and an acutely inflamed edematous appendix which was adhered retrocecally. The appendix was removed. The stump was cauterized but not buried. One Penrose drain was left in for 48 hours.

Pathologist Report:

The appendix throughout showed diffuse and fairly massive leucocytic infiltration, which extended a considerable distance into the surrounding peritoneal fat. Diagnosis: Acute appendicitis.

Postoperative:

He had about the usual postoperative condition the first four days except for a temperature which remained above 101 degrees. On the fifth day he had quite a hard chill with temperature of 103 degrees, quite severe abdominal colicy pains, frequent small emesis, and insomnia. The abdominal drainage wound was opened and considerable flaky serous fluid obtained. A small drainage tube was inserted down to the peritoneum which was left in four days with moderate amount of serous drainage. A culture from the depths of this wound showed a pure streptococcus. The seventh postoperative day, two days after his chill, an icteric change in the sclera was present and this persisted with slight variations throughout his sickness. A Levine tube was used for two days and thereafter he ate a liquid and soft diet with only an occasional vomiting. Endeavoring to find some explanation for his septic condition, on the twelfth postoperative day a fluroscopy was done with the following report: First Fluoroscopy—both lungs clear, free movement of both sides of diaphragm, angles clear. Liver normal size. Nothing demonstrable between liver and diaphragm.

He felt quite well on the fourteenth postoperative day, was up and walked a bit, but temperature went to 104 degrees, pulse 140, W.B.C. 17,000 with 87% Polys.

He was seen in consultation by Dr. C. R. Kennedy with the following report: Liver dullness extends higher than normal on right side. Liver margin tender. Suggestive of hepatic or subdiaphragmatic abscess. Suggest observation for week or two.

At the urgent request of his father he left the hospital on the fifteenth postoperative day, having had a continuous septic temperature during his stay in the hospital.

I saw him each day at home for the next eleven days. He had very little pain or discomfort except the last two days when he had severe colicy pains in the upper abdomen and considerable soreness below the right costal arch. He had a septic temperature from a 100 to 102 or 103 degrees each day, with chills on two occasions and profuse sweating every day. Insomnia quite marked. The lower border of right lobe of liver gradually extended downward so it was about 4 inches below the costal arch at time of re-entering the hospital on April 20, twenty-fifth postoperative day. At this time the white blood count was 19,600 with 89% Polys. The red blood count was 3,350,000 with hemoglobin of 60%.

Second Fluoroscopic Report:

Shows the lungs clear. The right diaphragm slightly higher than the left and limited in movement. The liver density in the right upper abdominal quadrant is greatly enlarged extending about 4 fingers below the costal margin. No demonstrable gas under the diaphragm. Impressions: Probable infection in the posterior right lateral trough of the abdomen.

Diagnosis:

The diagnosis of hepatic abscess was based on the following:

1. History and findings of acute appendicitis.
2. Upper right abdominal tenderness.
3. Repeated chills, fever, and sweating.
4. Jaundice.
5. Recurrence of leucocytosis.
6. X-ray and physical findings of enlarged liver.
7. Increasing toxemia.

Second Operation:

The morning of the operation, April 22, he felt quite well, and begged the nurse to give him his breakfast as he was so hungry. He was operated at 11:20 a. m. by Dr. C. R. Kennedy and myself. A high right rectus incision was used. The liver was found enlarged as anticipated, but no adhesions to the parietal peritoneum. There were small raised areas on the upper surface of the right lobe. Upon needling these areas no pus was obtained, but on making a larger opening with a forcep thick flaky pus was obtained from two of these areas. These abscess cavities were approximately two inches deep and three-eighths of an inch in diameter. Rubber drainage tubes were inserted, packs left in to wall off the abdominal cavity, and the wound was closed.

Postoperative:

Immediately following his operation he was in shock, cold, pulseless, ashen color, shallow respirations. He was given caffein, and sodiibenzoate, 7½ gr., and strychnia gr. 1/30, and taken to his room where external heat was applied, and 2-10cc. ampules of Normet solution I. V. Followed by hyperdermoclysis of N. S. S. In a half hour his color was normal, pulse of fair volume, but rapid—140 to 160. In two hours' time he was visiting with his relatives and seemed quite himself, but at the end of the next half hour he became cyanotic, very labored breathing, pulseless, and in twenty minutes he was dead.

Autopsy Findings:

1. Liver enormously enlarged with multiple abscesses.
2. Appendix' stump covered with firmly adhered omentum.
3. Intestines matted together.
4. Multiple abscesses in and about the veins of the mesentery, throughout the pancreas, and in the walls of the stomach.
5. Mesenteric veins were necrotic.
6. Kidney and spleen were soft and acutely inflamed.
7. Some dilitation of the right ventricle of the heart.
8. A persistant thymus and a patent formen ovale.

Final Diagnosis:

1. Acute appendicitis.
2. Thrombo-phlebitis of the mesenteric veins.
3. Metastatic abscesses.
4. Toxic degeneration of myocardium.

Summary of Case:

1. Trauma to the abdomen, followed by acute appendicitis.
2. Drastic cathartic taken.
3. Delayed appendectomy.
4. Altered convalescence.
5. Hepatic abscess operated abdominally and drained.
6. Massive wide spread infection of portal system.
7. Severe toxemia with death.

Conclusions:

1. Appendectomy earlier.
2. The Levine drainage tube in peritonitis of real value.
3. Life saving qualities of Normet Solution.
4. Helpless in a wide spread massive infection.

### SUMMARY OF LITERATURE

This subject has been well written up by a number of men as noted in the references. It may occur either pre or post operatively. The infection may reach the liver from the appendix by extension of thrombosed veins or emboli through the portal circulation. It may travel by way of the lymphatics or more remotely possible through the hepatic artery or biliary tract. The incidence reported by eight different writers varies from .1 to 4% with 45 cases in 11,000 cases of operative appendicitis or .4%. Some writers advocate the close inspection of the veins draining the appendix in all acute cases, and where found thrombosed they should be opened and drained. One advocates that the illeo-colic vein should be ligated at the junction with the superior mesenteric. Deaver in 1921 stated that he had not seen a case of liver abscess following appendicitis ever recover. More recent reports show that all non-operative cases die, while only about 50% of the operative cases. It is almost impossible to determine whether single or multiple abscesses are present; so that an exploratory operation is indicated on the basis of definite symptoms.

The most common cause of non-parasitic hepatic abscess is appendicitis. The earliest operation possible of the acute appendix seems to be the surest method we have for preventing this dread complication.

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# THE SIGNIFICANCE OF NERVOUSNESS IN CHILDHOOD*

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Omaha, Nebraska.

It is not generally understood that psychiatry has undergone radical changes since the beginning of the present century. Thirty-four years ago it was still a moot question if syphilis was a causative factor in general paresis, and lethargic encephalitis was practically unknown. Classification of mental diseases was brief and simple. Mania, melancholia, delusional insanity and moral insanity were common diagnoses. The great hodgepodge "neurasthenia" has not yet been popularized. And then came Kraepelin and Freud, and psychiatry was reborn. Whereas before psychiatry was largely static and descriptive, it now became dynamic and analytic. Conduct was interpreted in terms of unconscious motives, instinctive urges and emotional influences, and a voluminous psychoanalytic literature made popular such terms as "wish fulfillment", "unconscious",

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"symbol", "complexes", "infantile fixation", "libido". "repression". "Oedipus complex". etc. Symbolic interpretation became bold and ruthless. The illustrious dead and living. the mal-adjusted. and the ordinary human being were now classifiable. An individual might be fairly happy and successful and still be schizoid. cycloid, or paranoid. Freud's sexual theory of neurosis was hotly contested. And the rash and unfounded claims of inexperienced psychoanalysts confused the issue for many years. But with better understanding of Freud's psychology there has been rather general acceptance of his chief formulations. Much antagonism subsided when it was understood that libido embraces all our desires. hopes. and ambitions. and that sex is not only sensual sexuality but all the relationships included in courtship. marriage. and rearing a family. Freud enabled us to understand that emotional disturbances are frequently due to faulty sex knowledge and fears pertaining to the same.

There is still misconception about the technique and application of psychoanalysis. But all psychiatrists are using mental analysis in some form. And while prolonged and detailed psychoanalysis is rarely necessary. there seems no question that Freud's theories are scientifically sound. Apparently great good has resulted from the breaking down of false modesty and sex prudery. I think we may say that Freud and his followers have given us a more understanding psychiatry and vastly improved psychotherapeutic methods. There seems no question that the analytic psychology of Freud and the Zurich school has given us far better insight into all forms of mental activity; yet we must realize that there are other psychoanalytic methods which have been equally successful in the treatment of selective cases. I refer to the methods of Dubois. Janet, Prince and others. Nevertheless. I believe there are certain morbid states that cannot be relieved by any known method other than a prolonged and searching Freudian analysis.

The important and central fact of human adjustment is conflict. In order to live, the individual must gain a livelihood. This implies competition and competition means conflict. At the moment of birth the infant's first response to its new environment is a cry of anguish, and from the cradle to the grave, the journey of life is beset with innumerable obstacles and pitfalls. The babe, dependent upon the kindly ministrations of others and living in a world of fantasy, reluctantly accepts the stern realities of life; but with adolescence comes disillusionment, and the growing individual is called upon more and more to adjust to such conditioning influences as frustration. fear, suffering, mystery, a feeling of insecurity, and the certainty of final dissolution.

Now the majority of people are able to make these adjustments with a degree of poise and confidence that allows zest and happiness. But there are many people. and the number is steadily increasing, who fail to make harmonious adjustment to the ordinary stresses of life and develop varying degrees of mental unrest and disability. A study of the resultant conflict reveals the cause of all our social ills—chronic dissatisfaction, nervousness, insanity and crime. It is not difficult to prove that the faulty adjustment of such individuals is due to emotional conflicts dating back into the formative period of life. Throughout the years of childhood we acquire the beginnings of the concepts that determine thought and conduct in adult life. This being true it seems logical to reason that much can be done to prevent nervous traits if efforts are made in the formative period. It is not implied that a nervous child has been a victim of one or more striking or unusual traumatic events; but what is more probable, a succession of rather common experiences which resulted in a disordered emotional life and rendered the child susceptible.

It is not my purpose to attempt an explanation as to why some children are hypersensitive. Many factors are involved, including heredity, physical condition and handling in babyhood. Suffice it to say that the growing child who for any reason is showing symptoms of mal-behavior should have corrective guidance before actual personality distortion occurs.

The mental attitude acquired in childhood may be responsible for later mal-adjustment and the development of more serious reaction when new and stressful situations arise. I refer to such reactions as anxiety neurosis, obsessional neurosis and periodic depression. These are rather common types of nervousness. In mild forms they are not obviously disabling. and not incompatible with a high degree of success. But such individuals are overloaded and easily thrown off balance. When stress comes they are inclined to develop symptoms both physical and mental—disturbance in the vegetative nervous system and disturbance in mentality.

It is not claimed that all mental maladies are preventable. And it is granted that many individuals are born with an unstable nervous organization which renders them hypersensitive and susceptible to nervous disorders. Some authors would designate this condition a constitutional psychopathic inferiority. Granted that such classification is justifiable, we can still argue that treatment of these individuals in adult life is difficult and unsatisfactory, and that treatment in childhood offfers far greater possibilities.

Analyze the symptoms of neurosis and you will find the cause in a disordered emotional life. A neurotic is usually sensitive, scrupulous, and anxious. These attributes unrestrained may lead to conflict and regression and prevent harmonious adjustment; but coupled with a sane philosophy of life and a will to succeed, these same attributes may be the chief factors in successful living. If an individual is worried and unhappy he is forcing himself at the expense of efficiency. Such a one may be physically fit, but he is using energy in conflict that should be utilized in work. So we may say that the true measure of an individual's usefulness is his reaction in times of stress. And when nervous instability does develop, the reaction is not something that comes from without but comes from within. The big thing in all nervous states is anxiety. Anxiety is born of fear, and fear is a fundamental instinct which we all possess. This means that all of us have the elements of nervousness and that symptoms may develop if we encounter overstress or go beyond the limits of our endurance.

The following case of anxiety neurosis is typical and illustrative.

A man, 35 years of age, came for examination September, 1923, stating that his trouble dated back several years. To use his own words—"I think I have always been inclined to nervousness, but in 1911 I rather suddenly developed dizziness. I felt all right if lying down, but if standing or walking I had a peculiar feeling that my feet were not on the floor or sidewalk, and that it was unsafe to walk. Doctors found nothing wrong with me, and I tried to say nothing about it. I fought it and thought there was something wrong with my mind. I got worse, and it came over me that I had brought on the condition by improper conduct in childhood. I forced myself to work. A doctor thought I had better marry, and I did so. I then went out West and lived on a ranch for a time and felt better, but I got influenza and have been worse since. I have done well in my present position, but I must always have some one with me. And I am dizzy and have a peculiar numbness in my feet, and constant fear of being alone. Objects like tables and chairs seem too large or too small; my hands seem out of proportion, and I move my feet to see if they are all right, and I have a fear they are paralyzed. Often before trying to speak, I close my teeth together to see if my mouth and teeth are all right. I am forcing myself to work, but I can not forget myself."

The family history was negative, and careful physical and neurological examinations revealed no cause for his symptoms. The patient was married, the father of three children, and carrying on successfully as assistant manager in a large industrial plant. He could sit in his office and direct important affairs without difficulty. But if he attempted to stand or walk he became obsessed with a fear of falling, and he was inclined to brace himself against the wall or table, or otherwise support himself. Naturally this led to embarrassment, and forcing himself led to panic with palpitation and additional symptoms. Finally he accepted his invalidism and was accompanied at all times by an attendant. He was a man of artistic temperament and considered somewhat of a genius. During the World war he was given credit for some original ideas of considerable value to his company.

Briefly we have the following significant facts: He was sensitive and scrupulous as a child; strongly attached to his mother, who died when he was sixteen years of age, and he secretly disliked his father. He did excellent work in school and obtained a college degree. After mid-life the father was partially deaf and not in active business. The patient spent most of his childhood as an unwilling companion on long walks through the fields, and accompanied the father on an extensive tour of a year's duration. He retained vivid and painful memories of being forced to accompany his father on long, dreary, and lonely walks, when his legs ached from sheer exhaustion. There was no conversation between the two, and when the father attempted to converse with others, the patient was spokesman on account of the deafness. He recalls how he longed for freedom and play, his conflict because of "bad practices" in early youth, his tendency to hate the father whom he feared, his religious scruples, and grieving after the death of the mother.

There are these important facts also: the patient was quite comfortable during his high school days, when he was active in athletics and an honor man in his class. He did well in college until his senior year, when he gradually became morbid and at graduation he was forcing himself with considerable difficulty. And finally, after graduation, when confronted with his first really important adjustment—the decision as to the manner of gaining a livelihood—he rather rapidly became incapacitated.

It is not difficult to understand how the morbid fears and indefinite somatic symptoms had been conditioned in childhood. By a process of displacement and substitution, the repressed emotional conflict was finding escape in symptoms. Recall the complaint: dizziness, a peculiar sensation of numbness in the feet, the feeling of insecurity when walking, and a feeling of guilt and self depreciation. One can readily see the connection between the neurotic symptoms and the unhappy childhood. The dominating attitude of the father led to conflict; the child was tired, his legs ached, he was discouraged and antagonistic. His sensitive, scrupulous mind would not allow him to express or entertain his resistances, and repression of the painful material resulted. When his first important adult adjustment became necessary his repression gave way and he was dominated again by his infantile emotional material: that is, through displacement and substitution the infantile emotional attitude was transferred to adult situations. The emotional fixation here is obvious. This man's intelligence was mature, but his feelings and emotions were still infantile.

Re-education through mental analysis extending over a period of nearly a year, with the patient working, relieved the symptoms. He has been comfortable and carrying on successfully for the past ten years. If tracing the symptoms back from effect to cause resulted in improvement, it seems logical to assume that the symptoms could have been prevented by more considerate handling in childhood.

It is a serious thing to allow a child to grow into adolescence showing reaction tendencies which, though mild, point definitely to a disordered emotional life. The parents, and too often the physician, are inclined to shirk their responsibility by hoping, and even advising that the child will "outgrow it." Such advice is not only fallacious, but dangerous. We do not "outgrow" our early impressions. Every childhood experience leaves its impress on the mind. The impression may be forgotten or repressed, but this unconscious material continues to act by influencing thought and conduct. Hence it is claimed that maladjustment may be prevented by proper education, and relieved by re-education. But, this process of re-education must not be taken lightly. Treatment should help the patient to a knowledge of his own personality make-up and the nature of his conflicts. This knowledge of self is a necessary foundation for the process of re-education. Psychotherapy to be successful must broaden and clarify the patient's knowledge of human nature, and enable him to discover for himself the psychogenic factors which prevent harmonious living.

One finds difficulty in describing the nervous child. As indicated by a recent author, "every normal person is a little neurotic and every neurotic very much normal."(1) But there are certain signs and symptoms of emotional unrest which should be noted. Timidity and fear—fear of the dark, fear of parents, teacher, playmates; fear of blood, fear of death, and fear of God. The child should have special attention if oversensitive and emotional, has night terrors, wets the bed, bites its nails, grinds its teeth, or is inclined to any tics like blinking, grimacing, grunting, shrugging the shoulders; or has stammering, petit mal attacks, moral defect, distorted or prurient sex ideas, is inclined to tantrums or emotional outbursts.

After due consideration of the physical condition and the mental level, such a child should have corrective guidance in an effort to improve the maladjustment and prevent, if possible, more serious personality distortion. In suitable environment many of these nervous traits tend to spontaneous correction; but, coupled with an unfavorable heredity and continuation of the disharmony, there is likelihood of neurosis or psychosis in later life; and when frank symptoms do occur we may so befog the issue by attempts at hair-splitting diagnosis, that we lose sight of the cause. There is no sharp line of distinction between neurosis and psychosis. Strictly speaking both are "mental," and should be treated as such.

The basis of life is conflict. Born with the instincts of a savage, and striving for the virtues of a saint, man, not realizing his dual nature, may become the unhappy victim of a clash between unconscious motives. With the dawning of human intelligence came mystery, fear, and a feeling of insecurity. And primitive man found explanation and solace in the concept of a God. Man's environment has changed, but human nature is fundamentally the same today as it was in primitive times.

If the theory of dynamic psychology is sound, our modern youth is coming into its own—for certainly there is less mystery and less repression. But what about the apparent lack of religious interest? My practice in mental analysis leads me to think that men and women are still fundamentally and inherently religious. And the most involved, and, therefore, the most important, adjustment that mankind is called upon to make, is adjustment to the concept of the Infinite.(2) The time has come when the successful physician must be qualified to treat the entire man—his body and his soul.

REFERENCES

1. Wechsler: A Text Book of Clinical Neurology: P. 670.

2. The writer acknowledges indebtedness to the following: James J. Putnam, "The Sense of Our In-

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### DISCUSSION

DR. B. F. WILLIAMS, (Lincoln): I want to congratulate Dr. Dishong on his resume of the modern concept of analytical psychiatry. I do not know that anything I can add would carry greater force than the message he has left with you. I think possibly a few things might be said to emphasize some of the points he has made.

In the study of childhood personalities, someone has said that the entire conduct of the child represents those things we may observe in any psychiatric clinic. That is to say, the child's extremes of conduct—his emotional outbreaks and the other types of behavior—are characteristic of psychiatric reactions.

Dr. Dishong has well said, and we are justified in the conclusion he gave, that had the case he reported been properly guided in childhood and had his tendencies been recognized by those in control the patient might have avoided the pitfall that ultimately led him to a type of reaction that was, at least, a borderline psychosis.

It is well that the medical profession should regard this as a modern trend of psychiatry. I think we might carry with us the application of these principles in our practice of general medicine.

I want to again compliment Dr. Dishong upon his presentation. It is what we need in general medical practice. It is a proper approach to the subject, shorn of its glamor, destitute of the spectacular and securely planted upon a scientific ground work, in striking contrast to certain types of psychiatric literature with which this audience has been confronted in some program on past occasions.

With the doctor's permission, I will refer to the ingenious scheme of Bernard Hart. A graf which illustrates the method of attack in treatment.

Casual factors, such as childhood fixations, conditioning processes, emotionally loaded experiences, personality trends and mental mechanisms which rise into prominence under stress, all of these factors connected as links in a chain which end ultimately in the symptoms we are seeking to remove. He calls attention to the fact that treatment,. to which Dr. Dishong has referred as devised by Janet as suggestion, or Duboise as persuasion, is directed only to the symptom. But the analysis deals with these various elements that have been linked together like a chain, which end in the emotionally laden idea, that a symptom exists.

Thus he directs us to the fundamental principles so well developed by Dr. Dishong as the analytical approach.

The analysis of these various elements will lead to the normal re-adjustment of values, so that the individual will discover his faulty adjustments and the results will be complete and lasting.

DR. G. ALEXANDER YOUNG, (Omaha): I should like to add a few words in commendation of the paper by Dr. Dishong. Through many years of experience, he is well qualified to give practical advice on the subject.

It seems to me that one of the great needs in the practice of medicine today is a clear understanding of the principles involved in psychological medicine or psychiatry. We need to know how symptoms originate from mental causes, not only mental symptoms but somatic as well; and then, with a knowledge of the mechanisms involved we should be able to treat the morbid states according to approved psychotherapeutic methods.

Symptoms arise from psychogenic causes not as a result of the dysfunction of any one organ or part of the body but because the individual as an integrated he or she is in conflict with his environment. There is a maladjustment in the biological relationship between the person and the social forces surrounding him. On the one side, we have the instinctive strivings of the individual, and on the other, the traditions, conventions and laws that make up organized society. Unless a satisfying adjustment or equilibrium between the two is reached, the result is bound to be some form of nervous or mental illness or of criminal behavior.

I would like to stress particularly two concepts; to-wit, instinct and behavior patterns. Instinct may be defined as an inherited primary type of reaction to environmental stimuli. The human organism is provided with sensory mechanisms that enable it to respond to all those stimuli that have a bearing upon its welfare. Instinctive reactions are those that serve the major biological requirements of the individual. In simpler terms, we may say that our instincts represent our fundamental needs. Speaking in general terms, we have three main needs or strivings. First, we must have a sense of security from danger or harm. The fear instinct or recoil from the threat of pain or death causes us to conduct ourselves in ways that rightly or wrongly spell safety to us. Second, we have a need for power or freedom, which is manifested by the ego instinct, the impulses to self assertion or aggression which every one should exercise in their daily life. And third, there is the need for love, which has its origin in the so-called sex instinct. These three instincts or needs are present at birth and continue throughout life to seek gratification. If this gratification is found in modes that are harmonious with the prevailing conventions and laws then the individual will be free from psychogenic disorders. If conflict arises which he cannot adjust, then some sort of somatic, nervous, or mental illness will develop.

In discussing instinct, we should not forget that our emotions are integral parts of our instinctive reactions. The term emotion represents the physiological bodily settings or attitudes on the part of the viscera, glands, and circulatory apparatus that accompany the instinctive reactions. Emotion represents the tensed spring which released, energizes the motor instinctive reaction. Ordinarly, we are not conscious of emotion unless the instinctive reaction is inhibited. The bodily tensions represented by the term emotion provide the dynamic factor responsible for neurotic ailments when these tensions are not released in activities acceptable to one's ideals. Whether or not one becomes neurotic depends in large part upon how one has been trained in childhood to utilize the energies contained in the psychobiological mechanisms of instinct and emotion. If a child has been so trained to achieve a sense of power, of security and of being loved, he has, the assets which make for happiness and success. If there has been too much fear, too much inhibition of early instinctive manifestations of sex, inferiority feelings, lack of confidence and initiative are bound to develop with results that are often diastrous.

The concept of behavior patterns merely states the fact that the behavior of any person is determined by patterns of feeling, thought, and action that he or she has acquired by experience and training throughout life. An act once carried out in response to some situation tends to be repeated in similar situations unless some stronger motive than the original one causes it to be displaced by another. Behavior therefore tends to become more or less stereotyped, a fact that favors stability of personality and character. But the same principle also gives permanence to the poorly adaptive reactions that are seen in the psychoneuros and which persist indefinitely until corrected under proper treatment. Psychiatrists have long been familiar with cases where the morbid symptoms or neurotic behavior have their origin, as Dr. Dishong has so well shown, in reaction patterns developed in the earliest years of life. In all truth it may be said that every psychoneurosis may be traced to faulty behavior patterns resulting from experiences of emotional conflict in the first ten years of life. With these facts in mind, it may be readily seen how the treatment of the more severe psychoneuroses can be successful only when attention is paid to the early life of the patient as well as to their more recent problems.

DR. DISHONG, (closing): I want to thank the gentlemen for their very liberal and illuminating discussion of what I had to say.

I sometimes wonder, even in a short paper of this sort, if it is entirely fair to the listeners. We are pretty apt to leave the impression we are getting 100 per cent results in treatment. Approximately speaking, that is true. This case I referred to as being treated by mental analysis is carrying on as a normal individual and is fairly comfortable. I do not wish to imply he is entirely free from anxiety. As Dr. Young brought out, that is a tendency in some individuals. He grew into young manhood with a habit of worry. All of his childhood was filled with worry. Certainly he is still anxious, in spite of the fact he is carrying on. He is scrupulous and meticulous, and has occasion to call at least once or twice a year to be reassured.

It is quite all right. If a man has had a fracture or a heart or lung lesion, you are not surprised if he comes for a check-up. We do not blame them for coming back.

I wish to thank Dr. Williams and Dr. Young for their very courteous and illuminating discussions. I think they have said things that are more important than I have had to say.

I thank you.

# APPENDICITIS IN A RURAL COMMUNITY*

CLARKE E. BEEDE, M. D.,
David City, Nebraska.

The problem of acute appendicitis was apparently solved by the pioneer American surgeons advocating early diagnosis with immediate removal. What promised to be a brilliant accomplishment in the early era of aseptic surgery, has become a skeleton in our family closet. This apparently simple problem still occupies a controversial position in medical literature and gives rise to occasion for bitter comment wherever observant medical men gather. Some go so far as to say the mortality, both gross and relative, is actually increasing; that this increase is due to public indifference, that physicians have lost fear of the disease and, privately, surgical specialists express an opinion that it is the result of general practitioners operating upon their own cases. Whatever opinions are expressed here are strictly the reactions of a general practitioner to the problem as he comes in contact with it.

To those who have followed the literature there is no doubt the gross mortality has increased. Some of this is accounted for by an increased population. Whether or not the relative mortality is increasing is an open question and as such is a sad reflection on our profession. The excellent monographs of Bower relative to the situation in Philadelphia show that with effort the relative and gross mortality can be reduced.

A close study of the subject in a rural community reveals enough interesting facts to show what is being done there and points the way to still better results. The David City hospital is in a rural community of 2,500 and, at present, draws only from the town and immediate surrounding territory. It was founded by a thoroughly competent general surgeon about 1902, who developed the basic ideas and technique applied to appendicitis since that time. In the main, treatment has been immediate operation with removal of the appendix except where, in the judgment of the operator, trauma would be great. Such cases were simply drained. A few cases complicated by severe chest lesions were treated expectantly. It has never been a practice to add another operation to appendectomy for acute appendicitis. Keeping trauma at a minimum and not abusing the peritoneum by exploring other vicera is a basic principle.

The first series of cases were operated upon by the surgical specialist from 1910 to 1916. The second series from 1925 to 1933 by five physicians, who would be classed as general practitioners, two were members of the American College of Surgeons and all of whom were trained

| | | Total Cases | Simple Acute Appendicitis | Gangrene | Local Peritonitis or Rupture | Drain Only | General Peritonitis | Peritoneum Involved | Died | Peritoneum Involved — Died |
|---|---|---|---|---|---|---|---|---|---|---|
| Series 1 | Cases | 159 | 95 | 11 | 35 | 7 | 11 | 53 | 10 | 8 |
| | % | | 59 | 7 | 22 | 4.4 | 7 | 33 | 6.3 | 15 |
| Series 2 | Cases | 237 | 176 | 20 | 25 | 7 | 9 | 41 | 6 | 6 |
| | % | | 74 | 8.4 | 10.6 | 2.1 | 3.8 | 17.2 | 2.53 | 14.5 |

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in the technique of the original surgeon. As a result, the basis of treatment has been as uniform as can ever be when applied by several individuals. The population from which cases have been drawn in the two groups is a practical constant in social and educational standard.

In the first series there was in the beginning a tendency to put off operation in the less severe cases until the following morning. But before long the fallacious diagnosis, "Acute Exacerbation of Chronic Appendicitis," was discarded and operations were done immediately. In this series 23 cases with a recorded diagnosis of "Chronic," "Chronic Recurrent" and "Subacute Appendicitis" have been transferred to the acute group because the clinical record shows they would be classed as such today.

Treatment in the second series has been based on immediate operation as soon as diagnosis is made. A few cases have been temporized with because of complicating lesions in the respiratory tract.

Cases with simple drainage have been classed separately, regardless of whether extensive general peritonitis or as yet localized disease existed, as showing relative numbers where extreme caution seemed essential. We are primarily interested in the result where immediate operating is practiced as is always done here except where there is a very good reason for temporizing or in the face of an advanced peritonitis. As we learn more from failure than success in this disease a brief summary of fatalities should be of value.

In series one, five of the ten deaths were cases of general peritonitis as follows: A woman of 56 died on the 5th day after appendectomy and drainage. A boy of 16 with a gangrenous appendix, appendectomy and drainage died the 3rd day. Temperature in this case was never over 99. A twenty month old baby died in twelve hours after drainage only. A woman of 37 with diffuse peritonitis was treated by Ochner method for one week followed by removal of the appendix and drainage of the abscess died the second day post-operative. A boy of thirteen died the second day post-operative after removal of the appendix and drainage.

In the five deaths without general peritonitis a woman of 48 with an acute appendix died of pulmonary embolism the fourth day after simple appendectomy. A man of 35 with localized abscesses outside the colon and under the liver died the 10th day following appendectomy and drainage. This patient had massive hemorrhage from the gastrointestinal tract, the similarity of which condition to pulmonary embolism has recently been again emphasized by J. E. Summers. A women of 64 who had been sick for two weeks died the seventh day after simple drainage. A man of 50 sick three weeks died the 3rd day after drainage of an abscess without appendectomy. A male infant of eleven months with acute appendicitis and band obstructing the bowel died the 4th day after appendectomy and releasing the obstruction. Thus, eight of ten deaths had severe involvement of the peritoneum.

In series two a man of 56 with general peritonitis died the fourth week following removal of a gangrenous appendix and drainage. A man of 66 with general peritonitis died following simple drainage of the original focus, a boy of 8 with streptococcic peritonitis following appendicitis, a boy of 5 and one of 11 with general peritonitis following appendicitis complicating measles. A man of 42 with a ruptured appendix and band obstructing the terminal ileum died following appendectomy. release of the obstruction and drainage, I shall always think because the drainage was removed faster than customary in this last case. All fatal cases in this group had the peritoneum involved, five being diffuse peritonitis and one local. Of the fatal cases in this series only the boy with a streptococcic peritonitis was seen first by a physician in this group and then only on the third day of the disease. All other had been sick for several days under the care of other physicians undergoing the so-called "expectant treatment," wait and watch if you please.

It is a sad commentary that out of 237 cases of acute appendicitis, 41 of whom show some degree of peritoneal contamination, five of six deaths occur in those subjected to "expectant treatment." (Since rupture of the appendix does occur within 6 hours of onset and is not uncommon within 12 hours and frequent within 24 hours, just what do we "expect"?).

The two boys with measles would offer a problem for any physician. When we consider the severe respiratory pathology in measles I cannot criticize anyone who chooses to delay for a time. Availability of spinal anesthesia should be a vital factor in decisions involving these cases.

The salient fact in these statistics is not so much the reduction in mortality as is the reduction in the number with peritoneal involvement. In any comparative series of cases the two will be roughly parallel. Unless more patients are put in the hands of the surgeon before the peritoneum becomes contaminated there can be no marked reduction in mortality. The improvement in mortality statistics in this community has not been through refinements in operative care but in better and earlier diagnosis resulting in earlier operation.

The physicians operating upon the second series of patients contact nearly everyone in the immediate vicinity as family physician. They have constantly preached that bellyache may be appendicitis, appendicitis will be peritonitis and peritonitis is the precursor of death, so that today the patient often suspects his own trouble and calls the physician, prepared for immediate operation should his disease be acute appendicitis. If we are to accomplish better results the prospective sufferer must be made appendicitis conscious.

Physicians also must be awake to the possibility of appendicitis wherever abdominal pain is complained of. All too frequently the early stage is missed and the diagnosis made only when rupture is imminent or has occurred. The physician who orders a cathartic over the telephone in the face of abdominal pain has only a short time to wait before being morally guilty of manslaughter and should so regard himself.

We must always remember that there is no constant symptom complex. Pain is always or has recently been present. The reversal of the sequence, pain followed by nausea, gives rise to doubt; such cases bear the closest scrutiny. Tenderness can nearly always be elicited, muscular resistance is often absent and peritonitis may already be present without fever at the moment of examination. Leucocytosis when high is a danger signal, but when low is often a pitfall, trapping the physician in a disastrous mistake.

Too often the practitioner waits until there can be no douubt of urgency before consulting with the surgeon and goes on his way satisfied with having arrived at a certain diagnosis of acute appendicitis. The surgeon in turn explains his high mortality in the large percentage of advanced cases referred to him. Every physician who first sees a case of appendicitis should stand at the operating table as assistant, when feasible, and follow the patient whenever possible, day by by, until discharged from the hospital dead or alive. It is only when all physicians closely study the clinical course and pathological anatomy of this disease from its beginning to its end, will a satisfactory mortality rate result. We must have more men with a sound clinical knowledge of appendicitis in general practice willing to constantly preach the dangers of delay.

In discussing who should and who should not operate upon these cases, one touches a rather delicate and at the same time complicated question. Certainly the patient with acute appendicitis who early falls into the hands of a competent clinician, be he either an internist or surgeon, is relatively safe.

There is no doubt that many general practitioners, without adequate surgical training, are doing appendectomies to the detriment of their patients. In my opinion the case of acute appendicitis should be operated upon by the nearest physician who has a thorough working knowledge of surgical technique, common sense and, most important of all, a comprehensive knowledge of the clinical course of this disease and its complications. I am convinced the patient will be better off in such hands than if carted a hundred miles over rough roads or in bad weather to the most brilliant technician.

This analysis is not offered as an accomplishment of which one might be proud,—far from it. We should feel heavily the responsibility of having 17% of our patients come with peritoneal involvement. It shows we have not sufficiently impressed upon our people the frequency and seriousness of appendicitis. It shows that physicians are not making a diagnosis early enough and are not awake to the seriousness of delay. Six deaths in 237 cases, five of the six being treated expectantly, lays a direct responsibility upon the medical profession.

A majority of the profession together with the lay public have a false sense of security in the presence of acute appendicitis. They have applied the splendid results of early operation to the whole syndrome of appendicitis with its complications. The end of such reasoning, or more truthfully lack of reasoning, has been to wait; waiting until peritonitis has been established or is imminent. Such practice is always fallacious.

## DISCUSSION

DR. JOSEPH WEINBERG, (Omaha): As is often said, no medical meeting is complete without a discussion of appendicitis. Today the subject has been ably presented by one whom we know is most competent to discuss it.

We will always have ruptured appendices to take care of. I do not think that the laity will ever be educated to a degree where we will see none. We will have to do something more than educate to lessen the mortality of the more serious cases.

How is one to know whether or not the appendix is perforated. I think the best criterion is "has the patient had a physic?" If he has, and has had symptoms for several days the chances are that he has a ruptured appendix. In the advanced case there would be no difficulty in making a diagnosis of rupture or perforation.

Excellent groups of statistics have been compiled at the Pennsylvania University and Johns Hopkins University, in which it is shown that cases operated on on the fourth day, after serious symptoms and suspected rupture, have the highest mortality. The high mortality continues through the fifth and sixth day with operation and subsides after the seventh day with still lower mortality on the eighth. I know of no better working rule than to be governed by these statistics. If an appendix is seen up to the third day, even though periappendiceal abscess is suspected, it is well to operate. My own rule, with few exceptions, is to simply drain the abscess without removing the appendix. The appendix is removed before the patient leaves the hospital. By following this procedure there is less chance of spread of infection than there is with removel of the appendix at the time of draining the abscess. If the case is seen after the beginning of the fourth day, the patient is not operated on until there is thorough localization of the pus.

By following this procedure I think we can lower the mortality in cases of perforated appendices.

DR. E. C. HENRY, (Omaha): I think this paper is so timely and has been so well presented that it is entitled to some discussion.

We had a little discussion about appendicitis at the Lister Clinic a few weeks ago, and I was very much impressed with the fact that doctors do not agree, for instance, about cathartics. After we had argued it pro and con, one general practitioner said, "When I know I have a case of appendicitis, I always give a cathartic." So we do not need to blame the laity for following that rule, when the doctors themselves prescribe cathartics. He said a mother telephoned in, saying, "The baby has a pain in his stomach." He said, "Give him a dose of castor oil."

Very few men have had enough experience in one disease for their word to be final. When the masters of surgery like Drs. Mayo and Murphy, Ochsner, and Deaver compiled eight to ten thousand cases, and found the mortality very much higher in those who had been given cathartics, wouldn't it be wise for us to teach that cathartics should not be given in cases of appendicitis? Until we come to an agreement among ourselves, we cannot expect the laity to have intelligent knowledge of what they ought to do about cathartics.

The other thing I should like to mention is that a good many patients die not from peritonitis or from what the peritoneal cavity absorbs, but from absorption from the lumen of the bowel. The peritonitis may be quite local. It causes paralysis of the bowel, and it gradually distends and more and more toxins are absorbed. I will venture if he could trace his cases or do a postmortem, he would find at least 50 per cent of his cases who had died, did so from absorption of the lumen of the bowel itself.

The human body requires 2,500 cc. of water every 24 hours. If peristalsis has completely stopped and the bowel is completely paralyzed, the patient does not absorb that quantity of water. These patients are tremendously dehydrated. That deficiency must be supplied. The simplest way is to pick up a loop of the small intestine and insert a tube. Not only can you supply them with salt solution, which is most deficient, but with water. Let us control the intoxication they are absorbing.

I think we should lower that mortality. Fifteen per cent is a tremendous mortality of any disease. I agree with Dr. Beede that it is a great mistake to transport a patient seventy-five miles to get a particular surgeon. The vast majority of men are trained in minor things in surgery so that they can do an ordinary appendectomy. That is why I think every doctor, when he sends his patients to a surgeon, should go along and assist. He does not know when he may be having to do an emergency.

You will lower your mortality by getting in early. The type of operation is secondary. Dr. Murphy said, "In quick and out quicker," in the serious cases where it has rutpured. Removing it depends on the skill of the surgeon, where the appendix lies, and a good many factors that depend on the case itself and the time it is being operated.

DR. R. RUSSELL BEST, (Omaha): I believe there are two definite points in Dr. Beede's paper. First, the value of making the public appendiceal conscious. Second, that it is much better to have the patient operated upon by the nearest doctor, rather than to make a long and fatal trip to a surgical specialist.

In regard to making the public appendiceal conscious, I do not believe I have ever lost a case that did not have a cathartic. As I look back over it, and have gone into the history carefully, it is the patient himself, the patient's relatives and friends, or the corner druggist, or appealing advertising such as giving "Insane Crystals" to sane people to make them crazy people, which increases our mortality. I do not think there is any doubt about it.

I do not believe many doctors prescribe cathartics for patients when they have seen the patient. I think the error has been made by making diagnoses over the telephone.

Now, the question of mortality. We can divide acute appendicitis into three groups, as far as mortality is concerned: We have acute appendicitis without perforation, acute appendicitis with perforation and abscess, and lastly we have acute appendicitis with perforation and general peritonitis.

The mortality in the first type is quite low. I think we will agree, whether in the smaller hospital or the largest medical centers, an average trained individual can operate with a 2 per cent mortality or less. When it comes to the second group, our mortality will be about four times that in the first group. It will run between 6 and 8 per cent. When we come to perforation with general peritonitis, we can again multiply that percentage by four making a mortality of about 25 to 30 per cent. If we are honest and go over figures carefully, taking reports not based upon one individual's experience, but reports from an institution over a period of thirty years, the operations being done by a number of men not intimately associated, we get the fair and the practical figure. I believe Dr. Beede has presented such a paper and it is therefore most valuable.

DR. E. V. WIEDMAN, (Lincoln): I am happy to hear this paper. I think one of the points Dr. Beede has put over is we must make the doctors appendiceal conscious. You cannot educate the public until the doctors are educated. As soon as diagnosis is made is the time for the appendix to be removed.

To recall a personal experience: If you have had appendicitis yourself, I feel that is the best criterion. You will have no further trouble in the belly. A few weeks ago, after being up all night, I found my own boy had been awake with the belly ache. He had no rise of temperature or other symptoms. It did not take me long to get him to the hospital. He had a subnormal temperature and normal white count. Every time he got a full belly, and on marked exercise, he had a belly ache. Appendectomy showed two large fecoliths in a long appendix and indications of previous trouble. He has gained six pounds since then, in 6 weeks.

We take out tonsils to prevent heart disease. We immunize for typhoid and scarlet fever. I think the chief point in the doctor's paper is that the doctors, as soon as they see a case with belly ache or appendicitis, would lower their mortality rate by making a diagnosis early.

I saw a little girl who had been vomiting. She had a subnormal temperature. We took her to the hospital, and she had a white count of 19,000. She had a pus appendix. She is making an uneventful recovery. For your batting average to be high, the appendix must be taken out as soon as the diagnosis is made.

DR. BEEDE, (closing): Relative to Dr. Weinberg's discussion, I think the treatment during and after peritonitis as occurred is a matter to be decided by the surgeon himself, taking into consideration his method of treatment, and the patient's condition. I would not attempt to tell anybody when he should or should not operate on these cases of peritonitis.

The point perhaps I did not stress enough is that although we have, since my father's time, reduced the general percentage of mortality, in those cases in which rupture has occurred we haven't done one darn thing.

I feel like Dr. Best, that giving cathartics in a case of abdominal pain, without a thorough, complete examination, is a crime.

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# CANCER OF THE FEMALE PELVIC ORGANS

Report of 135 Cases from the University of Nebraska College of Medicine.

EARL C. SAGE, M. D.,
Omaha, Nebraska.

As Carl Henry Davis has recently said, "Everyone who has made a study of the cancer problem appears to agree that cancer can be cured in a very high percentage of cases if diagnosed and treated in an early stage. Most cancers are not seen early. However, the histories of patients with far advanced lesions indicate that in many instances the delay in diagnosis must be charged to the medical attendant who failed to make an adequate examination, or to appreciate the significance of suggestive symptoms or lesions. Such observations should impress us with the importance of intensive education of the medical profession in our attack on the cancer problem, we must begin at home."

These remarks are particularly apropos to the hundred some cases of cancer of the uterus, cervix and ovaries sent into the University Hospital for treatment. This number of cases was recently reviewed, the admittances being over a period of 10 years from 1923-1933. Let us see what we can learn from these cases from our own vicinity:

First of all, most of the cases admitted could be classified as grade III or IV, so it is not surprising to learn that out of 135 cases—76 are known to be dead, only 29 are alive and 30 are lost. (20% alive).

Moreover, we cannot competently treat these cancer cases at the University Hospital with only 45 mgm of radium at our disposal and no deep x-ray therapy machine. We were encouraged in July, 1934, when 50 additional mgms. of radium were secured, so that at present we have 90 mgms. of radium for gynecological treatment.

Great progress is being made in the study of cancer throughout the world and the eyes of the public as never before are focused on the profession for help in bringing down this rapidly increasing mortality. Cancer is now second as a cause of death in the U. S. with an annual death toll of more than 125,000 and presents a challenge to medicine in all its branches, both preventive and curative.

When the American Society for the Control of Cancer makes its survey of Nebraska, it is hoped that it will be forcefully brought to the attention of our legislature that the State University Hospital is sadly lacking in equipment to combat this cancer problem which is rapidly assuming an importance of first rank in the field of medicine.

The Doctors of our state likewise must detect these cancer cases earlier and make the laity acquainted with the fact that especially with cervical cancer, the average 5 year cure rate is 20% to 25% of all the admitted patients in the best clinics; but that the 5 year cure rate for cervical cancer clinically limited to the cervix, is 80% to 85%. The low rate for all cases means simply that the early cases are rare. Our problem in this regard appears obvious.

1. Education of all women by their doctors to consult their physician upon appearance of any abnormal bleeding or bloody discharge.
2. Careful history and complete examination of all who so consult.
3. Reference of doubtful diagnostic cases if necessary.
4. Treatment that is adequate.

Result: 80% to 85% 5 year cures instead of 20% to 25%.

The free use of the curette for biopsy purposes to disprove the presence of cancer of the body of the uterus is to be recommended. With reasonably early diagnosis, cancer of the uterine body, treated by the present means, yields a 5 year cure rate of 60% - 70%.

It is of interest to know that of our 29 cancer cases still alive 12 of those cases are cancer of the body of the uterus, 16 cases of cancer of the cervix and one case of cancer of the ovary. The ratio of uterine-body cancer to cancer of the cervix was one to four in our series.

Among all the cancers of the human body, there is no more promising field for successful treatment by modern resources than that of the malignant growths peculiar to women. Our resources at the University Hospital, however, are inadequate. Every cancer of the female genital tract is, on account of its ready accessibility, curable during a certain period of its existence. And yet deaths from these very neoplasms constitute one of the highest percentages of yearly mortality in the table of cancer statistics.

Of course the indifference of women, at the critical age, to the health of their pelvic organs is one of the causes for this deplorable state of affairs; also the insidious nature of the disease, but as Wm. P. Graves has said, "the responsibility for a lamentable number of deaths lies at the door of the clinician, and by this term I include the general practitioner and internist, the general surgeon, the obstetrician, and all too frequently, I admit, the gynecological specialist himself. In a cancer clinic one sees with disheartening frequency patients who have reached a hopelessly advanced stage as the result of the advice of some physician who has temporized with menacing signs or who from neglect or lack of training has failed to make such local diagnostic examinations as the initial symptoms demanded."

At the University Hospital the gynecological staff has been greatly aided by a well trained radiologist, Dr. H. B. Hunt, whose invaluable assistance in the treatment of these cancer cases is greatly appreciated. However, with the inadequate equipment at his disposal we are greatly handicapped.

Carcinomas of the uterine cervix and the uterine body must be grouped to facilitate the clinical study and the evaluation of therapy, be it surgical or radiation. Through the assistance of Dr. J. P. Tollman, pathologist, who examines microscopically all these biopsies and tissues, we have adopted the following grouping:

### CLASSIFICATION OF CARCINOMA OF CERVIX UTERI

1. Clinical Class I; the cancer was apparently still confined to the cervix.
2. Clinical Class II; there was parametrial involvement but the cervix was still somewhat moveable.
3. Clinical Class III; there was parametrial involvement to the pelvic wall with fixation of the uterus.
4. Clinical Class IV; represents terminal conditions, with involvement of the rectum or bladder or vaginal walls.

### CLASSIFICATION OF CARCINOMA OF CORPUS UTERI

(Healy, Memorial Hospital, New York City,
after Mahle, Ewing, Healy and Cutler.
Amer. J. of Ob. & Gyn. Jan. 1934)

1. Grade I; Papillary adenoma malignum. As a rule does not tend to infiltrate the myometrium.
2. Grade II; Adenoma malignum. Microscopic picture characterized by large giant glands, lined by several layers of cuboidal and cylindrical cells; often found in association with fibromyomata.
3. Grade III; Adenocarcinoma. Characterized by greater malignancy, more atypical cells, more evidence of anaplasia, solid masses of tumor cells infiltrate the stroma.
4. Grade IV; Cellular (anaplastic) Adenocarcinoma. Diffuse growth of small round and polyhedral cells often entirely lacking in glandular arrangement. Mitotic figures numerous and marked evidence of anaplasia is seen. Adenocanthoma may be classed here, a distinct histologic variety of corpus cancer presenting a combination of glandular and squamous structure.

In view of the marked difference in end results in the 2 major histologic types represented by the adenoma malignum (grade II) type of tumor and the adenocarcinoma type (grade III) the prognostic value of knowing as soon as possible in which histologic group the given case falls, is highly desirable.

100% of all grade I patients were alive.
87.5% of all grade II patients were alive.
63% of all grade III patients were alive.

Treatment of these cases was a combination of the efforts of the gynecological staff and the radiologist. Radium was applied to the cervix in three ways.

1. Vaginal.
2. Intracervical and intrauterine.
3. Radiation from a low voltage x-ray machine.

As large a dose of radium was given as thought possible in each instance, thereby finishing the course of treatment in a short time.

External irradiation of the pelvis in four positions about the pelvic circumference was rather ineffectual, however, as the machine had a peak voltage of 130 kilovolts, and ineffective radiation to the deeper portions of the pelvic field, especially the retroperitoneal lymph glands, is difficult to obtain with such equipment.

We feel that radiation therapy seems to have a greater field of usefulness than surgical treatment and offers more relief from symptoms and greater prolongation of life to a greater number of the patients. 22 of these cases had hysterectomies, however, and if the primary lesion does not respond satisfactorily to radiation but indicates by its lack of response that it is radio-resistant, we believe that panhysterectomy should be promptly done if the case is favorable for such a procedure.

### CONCLUSIONS

1. At the University Hospital we are handicapped in the treatment of cancer of the cervix and uterine body by lack of up-to-date equipment. We need a high voltage deep x-ray therapy machine.

2. The large majority of such cancer cases sent into the hospital are so far advanced—grade III and IV, with parametrial involvement or involvement of the rectum, bladder or vaginal walls, that cures are almost impossible.

3. It is our opinion that large massive doses of radium within a short space of time, preferably in one or, at the most, two treatments, offers the best method to attack this problem. The average dose is about 3600 milligram hours distributed evenly in and against the cervix by the cross fire method devised by Regaud at the Curie Institute, Paris, with the radium in the cervical canal, against the end of the cervix and in the lateral fornices.

4. From 3 - 4 weeks after treatment with radium, the patient should return to the hospital for a course of treatment with high voltage roentgen rays, given in 5 or 6 doses during a period of a week after patients have been treated, they are requested to return at monthly intervals for 3 months, and afterward every three months during the following year. Many of our charity patients do not or cannot make these follow up visits.

5. It is desirable not to irradiate a suspected recurrence unless a biopsy finding indicates that it is cancer. Retreatments are probably an indication of insufficient and inadequate primary treatment.

6. The State University Hospital should not lag behind four private hospitals in Omaha as regards deep x-ray therapy treatment. At present we do not have an adequate x-ray machine to treat women with cancer of the pelvic organs. More and more such patients are being sent in from the State for cancer—there have been 32 admissions so far this year in comparison to about 135 admittances in the last 10 years.

As Crossen states, "there are two improvements in treatment that we seek: First, more extensive and certain devitalization of the outlying cancer cells; and second, less inflammatory stir-up and less tissue destruction at the site of radium application." For more certain devitalization of outlying cancer cells, the best hopes seem to lie in increasing efficiency of deep x-ray equipment that is sorely needed at the State University Hospital.

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## BONE AND JOINT INJURIES ABOUT THE ELBOW*

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Clinical presentations, whenever possible, are usually of greater teaching value than abstract discussion, especially in bone and joint lesions, when early x-rays show the condition before treatment and check-up studies with the patient demonstrate the final end-result, which is always of paramount importance in any clinical problem.

In the past three months, we have had the opportunity of observing an unusual variety of elbow lesions, so that each of the ten patients I have collected for you presents a somewhat different problem in treatment and prognosis.

### DISLOCATION

Dislocations of the elbow are the most frequent of all elbow injuries, comprising approximately 20%. It is practically always seen in younger individuals, but not particularly common in children. It is very often complicated by fractures of the head of the radius, and less often of the coronoid process of the ulna. The usual position is that of posterior displacement of the ulna with the coronoid locked in the olecranon fossa and the fractured head of radius remaining anterior to the condyles of the humerus. The findings are quite characteristic, both clinically and by x-ray. The treatment is obviously early manipulation by hyper-extension, traction and acute flexion. The displaced head of radius usually requires excision, and this should be done early.

Patient No. 1: This young lady of 24 years, is a patient of Dr. Schrock's, who sustained a typical dislocation with fracture through the neck of the radius by falling on the outstretched hand. Reduction was easily accomplished; but as shown by the x-ray, the head of the radius remained displaced and was excised within three days after injury. As the injury occurred only two weeks ago, very guarded motion is allowed and the posterior splint is used for fixation. Her end result should be very good, but considerable time will probably elapse before full motion is obtained.

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*Presented at the meeting of the Omaha Mid-West Clinical Society, November 1, 1933.

### SUPRA-CONDYLAR FRACTURES

Supra-condylar fractures are frequent and seen especially in children. About 17% of elbow injuries are of this variety. Practically all show posterior displacement of the lower fragment, and the fracture line is most frequently oblique, running from behind down and forward. Acute flexion is necessary to maintain reduction, which is best accomplished under the fluroscope. Terminal circulation, cutaneous sensibility, and motor power in the fingers must be closely watched. Volkmann's contracture is a menacing complication, seen more frequently in this fracture than any other.

Patient No. 2: This girl of 5 years fell on her outstretched hand on July 25, 1933. The x-ray shows a typical supra-condylar fracture. Attempt at reduction by her family physician failed, and I saw her in consultation 48 hours after injury. Remanipulation under fluroscope resulted in anatomic reduction. A posterior molded plaster splint in acute flexion was applied with gradual decrease in the flexion after ten days. All splinting was discontinued by September 8th. At this time, three months after injury, she has full range of motion.

Patient No. 3: We have here a boy of 13 years, who presents a complicated picture, in that he sustained a displaced fracture of the lower radius and ulna in addition to a marked posterior displacement of the lower end of the humerus. He also had an immediate wrist drop, indicating compression, stretching or laceration of the radial nerve at the elbow. His good progress to date is attributed to immediate reduction, although remanipulation of the elbow was necessary one week after injury, due to recurrence of displacement in spite of acute flexion and adequate splinting. His radial nerve is showing signs of recovery, indicating that it was not divided, as the accident occurred ten weeks ago. Elbow motions are possible through 45 degrees.

### FRACTURES OF CONDYLES AND EPICONDYLES

In children, these lesions are usually epiphyseal separations and may be handled very much like the previous fracture. Replacement by open reduction is often necessary; and if the fragment of epicondyle is small, excision is desirable. There may be a vertical fracture line extending into the articulating surface of the humerus, giving the very difficult T fracture. Generally this can be managed best by traction suspension and fixation in semi-flexion; although if days have elapsed since injury, open reduction with steel pin fixation is necessary.

The capitulum of the humerus alone is occasionally separated through the epiphyseal line and must be accurately replaced. The fragment is much larger than one would suppose from the x-ray findings, due to its cartilaginous nature.

Patient No. 4: This boy was first seen by us five weeks after a condylar T fracture with persistent posterior displacement of both lower fragments. Open reduction was difficult in spite of medial and lateral incisions, giving complete exposure of the lower humerus. Two oblique steel pins held the fragments in good position, and the elbow was splinted in 60 degrees flexion. One year has elapsed since operation, and his range of motion is approximately one-third normal. His elbow is in semi-flexion, so this limited range gives maximum function. Very little increase in motion will occur in the future unless reconstruction procedures are undertaken, which should be considered hesitatingly in the face of present usefulness of the extremity as a whole.

Patient No. 5: This little girl of 6 years was seen 10 weeks ago with a fracture of the capitulum of the humerus. The rotation of the fragment was evident in the film, and open reduction was positively indicated. We were struck by the large cartilaginous portion detached, as the x-ray showed only a tiny shadow. Early replacement and fixation by a fine steel drill has given us full motion in a comparatively short period, considering the intra-articular location of the fracture.

### HEAD AND NECK OF RADIUS

Fractures of the head and neck of radius are next to dislocations and supra-condylar fractures in frequency, often being associated with the former lesion. The head may be comminuted with fragments free in the joint, or a transverse fracture through the neck may occur with the entire head carried upward in front of the condyles of the humerus or posteriorly into the olecranon fossa. These lesions are seen more often in adults than children, thus differing from supra-condylar fractures already discussed. Certain general rules may be laid down in the treatment of these fractures, depending upon the age of the patient, displacement, and complicating dislocation of the elbow. In the first place, early reduction of the dislocation by manipulation usually can be accomplished easily. Then, with the head displaced, its excision should follow within a few days. In children, it is desirable to replace the head to avoid permanent arrest of growth with subsequent cubitus valgus; although this usually retards return of motion materially. If the head is comminuted, complete resection through the neck is advisable; although if two-thirds of the head is intact, removal of the free fragments is adequate.

Patient No. 6: This girl of 8 years was operated yesterday (10-31-33), at which time the head of the radius was excised. Twelve weeks ago, she fell from a tree, striking on the left elbow. Rotations were lost, and there was noted a prominence over the external aspect of the elbow. X-ray examination disclosed a fracture through the neck of the radius with the head displaced and rotated through 90 degrees, so that it was bridging across the joint in the condylar region.

Due to the gross displacement and delay in treatment, we made no attempt to replace the head. Following resection of a portion of the neck of radius, all motions were considerably increased. It will be interesting to follow this patient's progress during her growing period.

Patient No. 7: This young man in his early twenties, is a patient of Dr. Paul Tipton's, and presents a comminuted fracture of the head of radius with three fragments in the joint space. At time of operation, it was found that two-thirds of the posterior portion of the head was intact, and this was not disturbed. His motion 5 weeks after operation is two-thirds normal, and the utlimate result promises to be entirely satisfactory.

### FRACTURES OF THE OLECRANON

These fractures are fourth in frequency about the elbow: and if any separation exists, open reduction is indicated. Laceration of the lateral aponeurosis of the triceps takes place with a spread of the fragments, and this also must be carefully repaired. Several methods of fixation have been used; and personally, I favor either a beef bone screw, or twisted phosphor-bronze wire. When wire is used, early motion without danger of separation of the fragments is possible, which greatly lessens the period of disability. If possible, fixation in semi-flexion is desirable, as motion returns more rapidly than if splinting in complete extension is used.

Patient No. 8: This young man sustained a fracture of the olecranon with wide separation of the fragments four weeks ago. Open reduction and fixation with fine twisted wire has given us anatomic position. Splinting at 90 degrees permits us, at this early date, passive motion through 40 degrees in the range most useful for function. The wire will be removed 8 weeks following operation, at which time we can safely predict at least 75% motion. Within 6 months, he should have full motion and a strong useful extremity.

### COMPLICATIONS IN ELBOW INJURIES

### VOLKMANN'S CONTRACTURE

Volkmann's contracture presents the most formidable complication and is seen more frequently with supra-condylar fractures than any other lesion of elbow or forearm. Little need be said regarding the close observation of terminal circulation after reduction and acute flexion position. It is true that very occasionally this disaster occurs where no attempt at reduction or splinting has been done, but the vast majority can be traced to lack of careful watch of the fingers for alteration in color, sensation, and motion during the first 24 hours after the elbow is placed in acute flexion. Reduction of the fracture must be sacrificed temporarily if this condition is even suggestive in its manifestation.

### OSSIFYING HEMATOMA

Ossifying hematoma occurs more frequently about the elbow than in any other region, and dislocations without fracture are often confronted by this interesting sequelae. One should always bear this in mind and be cautious in prognosis, as it is impossible to predict in advance when this might occur. It has been repeatedly demonstrated that removal of the ossifying mass before it has become "ripe" invariably leads to its recurrence.

Patient No. 9: On May 25, 1933, this young farmer was cranking a tractor when his arm was forced into hyper-extension. A dislocation of the elbow was alleged to have occurred, which was reduced. He states motions were limited from the beginning: and when seen by us in July, two months after injury, an extensive ossifying mass was found along the anterior surface of the lower humerus, and apparently in intimate relation to the capsule and deep ligamentous structures. Motions were possible through less than 30 degrees.

We delayed operation for an additional month, as we felt the mass was not yet mature. Complete excision was accomplished through an antero-lateral incision. Motions at this time are about three times greater than before operation. Full motion is not anticipated, but a useful range is assured.

### DELAYED ULNAR PARALYSIS

Delayed ulnar paralysis presents an unusual and often very late complication of a condylar fracture. The external condyle is most frequently fractured and non-union may occur with gradual increase of the carrying angle (cubitus valgus), causing a stretch of the ulnar nerve with subsequent paralysis. The nerve signs may come on as late as 30 years after fracture, and change of occupation may play a part in the delayed manifestations.

Anterior transposition of the ulna nerve from its course between the olecranon process and internal epicondyle to a straight path in front of the capsule of the joint and embedded in muscle, gives gratifying results, although considerable time is necessary for complete return of function.

Patient No. 10: This lady in her mid forties, states that, as a girl, she sustained a fracture of the right elbow with permanent deformity, although function has always been very good. For the past year, she has noted numbness and tingling of the fifth finger and increasing weakness and some wasting of the right hand. Examination disclosed a definite increase in the carrying angle with a prominent internal epicondyle. Elbow motions were complete. On palpation, she complained of tenderness along the course of the ulnar nerve at the elbow. The hand presented slight wasting of the interossei muscles, but no contracture or characteristic semiflexion of the ring and fifth fingers. Sensory disturbances were found over the palmer surface of the little finger and she stated this finger felt peculiar when touched. The x-ray films discloses an old fracture of the external condyle of the humerus with non-union. One month ago the ulnar nerve was exposed and found flattened in its groove at the elbow. It was transposed anteriorally, and the fascial bands above and below the epicondyle divided so that the nerve rested in a soft muscle bed. Within a week, the sensory disturbances in the fifth finger disappeared; and as this was her chief complaint, she feels that the result is very gratifying. Full strength in the hand will undoubtedly return, although a minimal time of six months may be necessary.

# INFANTILE ECZEMA*

W. O. COLBURN, M. D.,
Lincoln, Nebraska.

Infantile eczema continues to exist as one of the outstanding maladies of infancy. A carefully recorded history reveals an hereditary factor in about 75% of the cases, and in most of these we might conclude that allergy exists.

Then by allergic eczema we mean one due to hypersensitiveness to foreign protein. In the earlier months of life allergy manifests itself more often by eczema, later usually after two years of age the same patient may lose its skin pathology and develop symptoms of asthma. The former is usually associated with foods, the latter is more apt to be the result of inhalants.

Skin tests is the method most commonly used in the determination of the offending proteins. These tests are not infallible when performed on an infant under six months of age, in fact they are quite unreliable.

The earlier the isolation of an offending protein can be made and the patient desensitized, the less likelihood of subsequent manifestations, especially asthma.

It is therefore obvious that allergic investigations in early life will be more fruitful of curative results.

In the few moments allotted to me on this program I wish to consider one small phase of this subject viz., the treatment of eczema in the breast fed infant.

Shannon, a pediatrician, was one of the earlier workers in the field of allergy relating to infants, and he did skin tests on the breast fed infant, and eliminated the reacting foods from the mother's diet. His results were fruitful and showed a decided advance over all previous treatment.

About three years ago I conceived the idea of a treatment of desensitization of the sensitized breast fed infant through the use of its mother's milk in graduated doses subcutaneously. The advantages are at once obvious.

1. No longer necessary to do skin tests to determine the offending protein.
2. The mother does not need to limit her diet to certain foods.
3. The baby is desensitized to any sensitization by foods the mother is eating.

The determination of a proper dosage is still a question and still in the realm of experimentation relative to the work I have been doing in this field.

Like other desensitization treatments it is of prime importance to start with a small dose, and increase as rapidly as possible. Before a definite schedule of dosage was considered, the following reactions were noted:

1. Certain cases treated with relative large doses made almost instantaneous recoveries.
2. Some cases were better on first dose and exaggerated on second dose, and continued worse until the dose was greatly reduced and the increase more gradual.
3. Some cases seemed to recover on as little as two doses, others required 10 or more doses.

The following table gives twelve cases with dosage administered and results obtained:

TABLE

| Case No. | Sex | Age | Treatment Subcutaneausly in minims) | Results |
|---|---|---|---|---|
| 6440 | M | 5 wks. | 5, 10 discont'd breast milk | Improved |
| 5890 | F | 6 wks. | 5, 10, 20 | Excellent |
| 7723 | F | 7 wks. | 4, 6 | Improved |
| 6086 | M | 2 mos. | 5, 10, 20 appeared 2 months later | Improved |
| 5471 | M | 3 mos. | 3, 5, 8, 10, 15, 18 worse.<br>2, 2, 2½, 3, 3 | Excellent |
| 7783 | M | 3 mos. | Given by local physician | Excellent |
| 7129 | M | 4 mos. | 4, 5, out of town; seen later | Improved |
| 7889 | M | 5 mos. | 4, 5, 6, 6, 7, 9 | Excellent |
| 2249 | F | 6 mos. | 4, 8, 12, 15, 16, 20, 23, 23 | Excellent |
| 7229 | M | 6 mos. | 3, 5, 5, 6, 7, 10 Continued by Local M. D. | Excellent |
| 6048 | F | 6½ mos. | 4, 10, 14 | Improved |
| 7559 | F | 7 mos. | 3, 5, 8 Well 10 days.<br>8, 10, 12½, 12½ | Excellent |

The following preparation and dosage is recommended:

Express breast milk and boil in water bath 3 minutes. Start with 1 minim and increase 1 minim every other day until 4 minims are given; then give twice weekly increasing 1 minim each dose until 10 to 15 doses are given depending upon the results obtained. In some instances it might be necessary to dilute the breast milk with water and start with fractional doses.

This preliminary report is made based on a small number of cases, yet promising enough I believe to pass on to the profession.

## DISCUSSION

DR. OLIN J. CAMERON, (Omaha): I think Dr. Colburn is to be congratulated on this presentation, and especially on his results. I do not know of this exact procedure having been carried out previously. During the last year, however, an Italian by the name of Accordini has had results similar, but not as good as these, by treating infants with true allergic eczema with intramuscular injections of maternal serum. Although the same antigens or allergens may be present in maternal serum as in maternal milk, I would be inclined toward the view that Dr. Colburn's procedure is a superior type of work. I am wondering about its eventual possibilities. I have had no experience with it.

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*Presented before the annual meeting, Nebraska State Medical Association, Lincoln, May 24, 1934.

Dr. Colburn has given these treatments by the subcutaneous method of administration. There is some recent evidence to show that antibody formation can be stimulated somewhat better by the intradermal method of injection. This possibility should be kept in mind by those carrying out this mode of therapy in the future. Perhaps intravenous therapy might be undertaken but I would regard it as potentially hazardous.

I also think it is important for anyone undertaking this type of treatment to be very careful to distinguish the various types of eczematous or eczematoid dermatitides from the true food eczema of infancy. Most of the eczematoid processes in infants are not true allergic eczema. We see a great many cases regarded by others as allergic which are not. One is seborrheic eczema, often localized to the scalp and about the ears. It starts usually from the ordinary cradle-cap or milk crust. I think this type will respond better to wet dressings, oil dressings and very weak salicylic acid and sulphur therapy.

I want to express my appreciation to Dr. Colburn for bringing forth this type of treatment.

DR. HERMAN M. JAHR, (Omaha): I should like to ask if any local treatment was used in addition to the injection treatment.

DR. COLBURN, (closing): Regarding the suggestion of Dr. Cameron relative to intradermal injections, I think it is a good suggestion. We have used this method for administering aolin for nonspecific protein therapy, with good results. I think it could be tried here.

Regarding cradle cap, I think the suggestion is all right. We do not consider it so much a case of eczema as the lesions on the face with more erythema.

Regarding local treatment, I must confess we use local treatment with most cases. We are sure it is not the local treatment that gives us quick results. It will help clear up the lesion much quicker.

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# DIARRHEAS IN INFANTS*

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Diarrhea is still credited with first place among the disorders that kill infants, but we realize that it is not nearly so important a condition as it formerly was. General improvement in sanitation, education of mothers, more supervision in infant care, have all had their share in bringing about a decreased incidence of intestinal infections.

The numerous papers and discussions as to whether infantile diarrhea is due to some abnormal chemical composition of the food, to nutritional disturbances, to enteral or parenteral infections, leaves no doubt that there is no one single cause of the condition, but that it may be due to one or more factors.

We find seasonal variations in the severity of diarrheas, different types of organisms present in stool cultures in different epidemics from year to year in the same localities.

For purposes of classification the diarrheas may be divided into these divisions for the purpose of treatment: Mechanical, fermentative, proteolytic, infections, or those associated with infection.

It is the purpose of this paper to summarize the present treatment of diarrhea in infancy and to give some of the reasons for phases of the treatment.

Diarrhea is often only one item of a symptom complex which may arise from various causes quite remote from the gastro-intestinal tract, as otitis media, respiratory infections, pyelitis, etc.

A better understanding of the associated conditions brought about in the body has resulted in a more intelligent application of therapeutic procedures to restore normal conditions in the body.

In some of the simple diarrheas, that is of the non-dysentery type, definitely recognizable parenteral infections, as coryzas, otitis media, and mastoiditis are often found in a high percentage of cases. The presence of middle ear infections are sometimes unsuspected because of lack of evidence of inflammatory change in the tympanic membrane in the severely dehydrated infant, and when the fluid balance and circulatory improvement takes place, a dull appearing drum membrane then presents a characteristic inflamed appearance. This conditions of the ear should be borne in mind when examining for this parenteral infection. In the dysenteric type of diarrheas parenteral infections occurring during the course of the disease about double the mortality rate.

A fairly close relationship was found by Marriott to exist between the degree of acidity of the gastric contents and the presence of organisms of the colon groups in gastric analysis. As the gastric acidity decreased, more bacilli were found in the stomach. The direct opposite was found in cases of true dysentery. When bacillus coli are found in the stomach it is taken as evidence of their presence in large numbers in the duodenal and jejunal contents. It therefore seems feasible to increase gastric acidity as a prophylactic and therapeutic measure.

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*Presented before the annual meeting, Nebraska State Medical Association, Lincoln, May 22-24, 1934.

The general effects of diarrhea upon the body are sometimes of the greatest importance and require most energetic treatment. These effects are: 1st, starvation resulting from insufficient intake and assimilation of food and water, or from loss by the exaggerated evacuation. 2nd, dehydration with decreased blood volume and flow, and a relative increase of plasma protein, and dessication of tissue fluid. Ketosis, as a result of carbohydrate depletion, is not usually a factor in the acidosis of diarrhea, particularly if dextrose is furnished the body. 3rd, acidosis due to the loss of large amounts of gastro-intestinal secretions and other factors, as anuria, with the inability of the kidney to excrete fixed acid, a greater loss of fixed base than fixed acid, and production of organic acids. The acidosis in diarrhea cases is usually chloride acidosis.

The consumption of body proteins may lead to secondary disturbances, particularly when the plasma proteins become depleted. This disturbance becomes manifest as a generalized edema, commonly termed a "nutritional edema." For this condition blood transfusions are of immense value.

When we are confronted with a case of diarrhea, it is wise to review all the possibilities of etiology, and often the history of the case will help in this respect and influence the mode of treatment.

Of the utmost importance in the severe cases of diarrhea is the prompt restoration of normal blood chemical composition. The diarrhea itself is only a symptom and a protective reaction on nature's part.

In most all of the cases, if there has been no previous starvation period, it is well to institute one of from twelve to twenty-four hours. An initial cathartic may be of value, if the case is seen early. However, fluid should not be withheld, but should be forced during this period. If vomiting of fluid occurs, a diluted infusion of tea is often of value, as well as gastric lavage. If it is not possible to force fluid by mouth, then other routes must be taken, as intraperitoneal, subcutaneous, or intravenous injections. A continuous intravenous injection has proved of great value. Hartman's solution, which is a mixture of Ringer's solution and sodium lactate, is an ideal solution to use in any of these routes.

Dextrose may be administered to supply fuel, to relieve ketosis, and for diuretic reasons. It may be used as a 6% solution subcutaneously or mixed with a physiologic buffer salt solution in equal parts. If given as a slow continuous intravenous injection, a 10% solution may be used, and the rate of injection should not exceed 3 cc. per kilogram of body weight per hour.

Blood transfusions are sometimes of great value, but should be given only after the immediate dehydration has been corrected.

During the period of starvation Marriott offers an acidulated and buffered water by mouth to keep the stomach and upper intestinal tract sufficiently acid, to prevent the growth of intestinal organisms.

Often enemas, especially at the beginning of diarrheas, are of great value.

The breast fed baby is not taken off the breast, but short feedings may be given, or the breast milk diluted and given. Good breast milk should be used when available. If the stools are acid, green, and excoriating, a food high in protein and low in fat, and carbohydrate is indicated.[4] Dried powdered protein milk is very ideal here—one to ten dilution. On the other hand, if the evacuations are brown, watery, and stinking with putrificative odors, a proteolytic diarrhea, it will be of advantage to add a small amount of carbohydrate, a dextri-maltose preparation being very efficacious.

After the temperature has dropped and vomiting and diarrhea improved, food should be added as soon as possible, so that an adequate amount of calories are given. Food with roughage should be avoided. Such foods as jello, fruit juices, strained cereal, white crackers, and toast, have been found useful. Vegetable purees should be given later.

Innumerable drugs have been used in diarrhea, often with more harm than good. The use of astringents are of no value in the acute stage, and their use should be abandoned. Bismuth subcarbonate and animal charcoal act as bacterial growth inhibitors, and are of some value. Opium very judiciously used, I believe has a place in treatment for restlessness, tenesmus, and abdominal pain. But opium certainly should not be used during the stage of toxemia and fever. Atropin is of value for tenesmus and abdominal cramps.

There has been some evidence presented lately that quanidine intoxication may be a factor of etiology in the intoxication of diarrhea, and clinical and chemical improvement after the use of calcium gluconate has been noted.

In any case in which parenteral infection is present, whether as a cause or complication, the infection should receive appropriate treatment.

### DISCUSSION

DR. E. B. WEGNER, (Lincoln): Mr. Chairman and Members of the Society: I think Dr. Dow is to be commended for reminding us that diarrheas in infants are still very important. I think we should thank him, especially for having condensed into the confines of so short a paper so much valuable material.

I simply want to emphasize two or three things—first of all, the fact he called our attention to the use of cathartics in diarrheas. As a pediatrician, I feel whenever we recommend the use of cathartics, we should also issue a warning. It seems to me that over and over again we see them used to the extent of doing more harm than good.

Another thing mentioned in Dr. Dow's paper with which I think many of us, possibly, would agree thoroughly if we gave it more attention, is the importance of the reaction of the stool in cases of diarrhea. It is a very simple thing to test the reaction of the stool. If it is acid, it is simple to change the diet of that infant to protein. If the stool is alkaline in reaction, many times a change to carbohydrates is all that is necessary to clear up the condition.

Recently there has been much said in medical literature regarding raw apples in the treatment of diarrheas in children and infants. I do not know why Dr. Dow omitted this, unless he had so much in his paper he had not time to mention it. It seems to me it is worthy of mention. In a series of a considerable number of cases, in as high as 88 per cent, good results have been obtained by using raw apples in diarrheas. From one case Dr. Colburn happened to have, I know the raw apple diet may be used in an infant six months of age. It is simple, and cannot be said to be entirely empirical. Whether we can attribute the benefits to tannic acid or pectin, and whether its action be chemical, mechanical, or physiological, makes no difference. The fact of the matter is, it is a valuable adjunct in our treatment of diarrheas in infants and children, and I think should merit our consideration.

DR. HERMAN M. JAHR, (Omaha): I should like to speak about the use of castor oil, and say not to give any laxative. There is no surer way of bringing about the very condition which Dr. Eldredge mentioned, necessitating the use of more radical methods —no surer method of dehydrating them than by giving laxatives.

DR. FLOYD S. CLARKE, (Omaha): I have had contrary experiences with raw apple diet. I have used it twice in my practice. With one youngster I recall, we used it religiously exactly as the literature directed. The procedure originally was reported in the German literature. It had absolutely no effect in ameliorating the symptoms. We cultured the stool and found the Friedlanders bacillus in the stool. We secured a donor and injected the culture of the Friedlanders bacillus into the donor and gave the patient some blood from this donor. This finally cleared up the diarrhea. We must think of this procedure in prolonged diarrhea. The other youngster was eight months of age. The raw apple diet had no effect on this second patient.

I was glad to have the essayist omit the use of cathartics. You and I can remember when we said, "Give him a dose of castor oil," and bang would go the receiver. I do not think it did much good. I think most of us are not giving castor oil with the majority of our diarrheas at the present time.

Another thing it seems to me we should think about is the practice of preliminary starvation. I do not think we should use it in all our cases. There is a question in my mind whether or not we should start with a starvation period of twenty-four to forty-eight hours in the case of a youngster who has had a diarrhea for a week and is somewhat dehydrated. I think our best results are obtained by immediately starting on the kind of food necessary in that particular type of diarrhea.

Another procedure which we have all seen and which is serious is where multiple enemas have been given. It is quite common to see a diarrhea prolonged by giving four or more enemas a day, or possibly only one or two. I believe it is a mistake. I think an enema in the beginning, if there be feces in the canal, is sufficient. If we continue the use of enemas, it irritates the intestine and that portion near the rectum, aggravates the tenesmus, and often increases the inflammation which is already present because of the diarrhea.

DR. LEONARD A. SWANSON, (Hastings): I have had some good luck with commercial buttermilk in some of these cases. I should like to ask Dr. Dow if he has any experience?

DR. DOW, (closing): I tried to give the high points on this subject. I expect we all have our favorite mixtures in diarrhea. I think one must use his own judgment in these cases of diarrhea, largely depending upon their severity. Here is a breast fed baby with five stools a day over a period of twenty-four hours before the mother gets in touch with you—probably a fermentive type of diarrhea. I do not institute a period of starvation in this type of case. We give water before the mother nurses the baby. If it is an infantile type with high fever and symptoms of toxemia, I would be in favor of giving a short period of starvation. As to the question of buttermilk, I think it is very good. It would be of value for two reasons: 1st, that it would increase the intestinal acidity, and 2nd, that it has a low fat content. It is also quite well tolerated.

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## HYPERINSULINISM, A DEFINITE DISEASE ENTITY: ETIOLOGY, PATHOLOGY, SYMPTOMS, DIAGNOSIS, PROGNOSIS AND TREATMENT OF SPONTANEOUS INSULOGENIC HYPOGLYCEMIA (HYPERINSULINISM)

Seale Harris, Birmingham, Ala. (*Journal A. M. A.*, Dec. 16, 1933), gives the definition and frequency of hyperinsulinism and states that hunger is the most constant symptom. At least a hundred cases have been reported by American and European clinicians, surgeons and pathologists who have made thorough studies of all phases of hypoglycemia due to the hypersecretion of the islet cells of the pancreas. Sufficient data have accumulated in medical literature to warrant the discussion of hyperinsulinism as a definite disease entity. The author endeavors to outline the etiology, pathology, symptoms, diagnosis and treatment of hyperinsulinism as derived from published reports of many cases and from a study of the disease over a period of ten years.

# TUBERCULOSIS IN CHILDHOOD*

E. W. HANCOCK, M. D.,
Lincoln, Nebraska.

The modern conception of tuberculosis is that of a disease beginning with a primary infection due to the localization of tubercle bacilli in some portion of the body, usually the lung parenchyma. Characteristics of this type of infection are an inflammatory lesion at the first point of localization: a wide spread dispersion of organisms to regional lymph nodes and other parts of the body; an almost invariable tendency to resolution with fibrosis and calcification; and most important of all, a change in all the tissues of the body whereby they are rendered sensitive to tuberculin. The clinical characteristics of the primary infection consist in a mild illness, masked as some acute infection, x-ray findings of pneumonic consolidations in a small percentage of cases, the frequent presence of tubercle bacilli in the gastric contents, if they are searched for, and a positive tuberculin test.

After this primary infection has resolved, the disease passes into a quiescent stage which we call childhood type tuberculosis, characterized by the presence of live tubercle bacilli in various foci, an entire absence of symptoms and physical signs, x-ray findings of calcified areas in the lungs and some other tissues (25%), and a positive tuberculin test.

Under favorable circumstances this condition persists throughout life until the patient dies of some other disease. In a small percentage, however, re-infection occurs, which due to the altered reaction of the tissues (allergy) gives rise to an entirely different type of pathology which we call adult type tuberculosis. This type is characterized by progressive tissue destruction with physical signs and severe symptoms and illness or death of the individual.

It will be seen from the foregoing that the childhood type tuberculosis cannot be suspected except by history of exposure; it cannot be diagnosed except by the tuberculin test; its extent cannot be estimated or its progress followed by any means except the x-ray. This means that all children must be routinely given the tuberculin test, with x-ray examination, not once, but repeatedly, of the positive reactors. The treatment of a known case of tuberculosis includes an investigation of the entire family. The health supervision of a well child should include periodic tuberculin testing; institutional care must include it; and school health work should.

This procedure was carried out in four different groups of subjects, with results as shown in Figure I. The percentage of positive tests, while slightly higher in the dispensary patients, was approximately 25% for all except the nurses, where it was 43%. This difference may be partially accounted for by the difference in age, but not entirely so. The positive reactors among the dispensary patients and nurses showed a much higher incidence of positive x-ray findings, both childhood and adult types, indicating a more extensive original infection and more re-infection.

The real control of tuberculosis consists in preventing the primary infection, since that makes all the other forms possible. This is accomplished by finding the infectious case, isolating it in the home or in an institution, or removing the exposed children if isolation is impossible. There is no evidence to prove that a primary infection confers any protection against any form of tuberculosis, hence it is to be avoided if at all possible. Deliberate exposure is mentioned only to be condemned. If the evolution of tuberculous disease as here given is correct, vaccination with BCG is illogical, in spite of its widespread use by numerous adherants, both in this country and abroad.

If we find by the tuberculin test that primary infection has already occurred, and the x-ray reveals no adult type lesions, the only treatment required is to discover the source of the infection or any possible source in the child's environment, and break the contact, by removing either the infectious individual or the infected child. As we have already shown, the tendency is for these lesions to remain quiescent if reinfection is prevented. The maintenance of optimum health by proper diet, hygiene and correction of physical defects are all measures which every child deserves. Periodic x-ray and physical examinations for the detection of adult lesions is essential.

If adult lesions are already present when the infection is discovered, or if they appear at later examinations, active treatment is indicated, identical with the measures used in the older person for the same type of involvement.

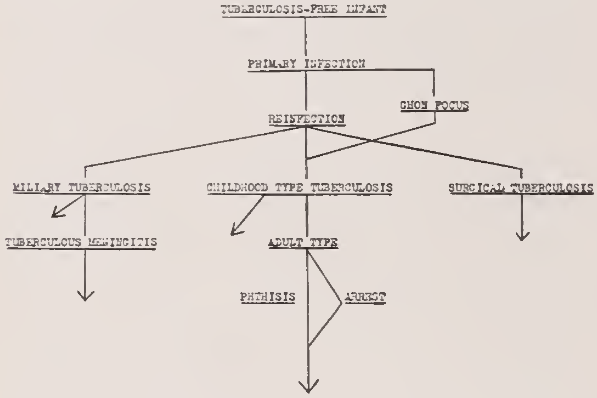
1. Childhood type tuberculosis is a benign, symptomless process resulting from primary infection.

2. Routine tuberculin testing is the only effective means of discovering tuberculosis at this stage.

3. The only treatment required is the preven-

tion of reinfection and ordinary measures for the maintenance of health.

| Material | Number Examined | Per Cent Positive | % Positive X-rays Childhood | % Positive X-rays Adults |
|---|---|---|---|---|
| Private Patients | 50 | 24 | 17 | 0 |
| Dispenary | 200 | 28 | 46 | 6 |
| High School | 1250 | 22 | 10 | 0 |
| Nurses | 60 | 43 | 27 | 13 |



Tuberculosis in Childhood

## DISCUSSION

DR. J. HARRY MURPHY, (Omaha): I think we are very much indebted to Dr. Hancock for bringing to us, a subject based on an analysis of findings developed out of his own experience. I think that is one of the things we should do. We should try as much as possible to analyze our own situation, as we see it in our own community.

The incidence of tuberculosis is peculiar to the community, and our present knowledge of the subject depends a great deal on what has been demonstrated as the incidence in other communities. We should begin to develop information on this phase of tuberculosis as it affects our own community. This is being done by Dr. Hancock and should be taken as a good beginning. He reports an incidence of high school children in Lincoln, 22 per cent, and it runs approximately the same in Omaha. The incidence in dispensary practice the doctor finds a percentage of 23, while in Omaha we found it was about 44 per cent.

The question of childhood tuberculosis is a new concept. We are thinking of it now as the basis of the tuberculosis infection in the adult, i.e., a reinfection on a previous primary infection. This brings the problem to its source and gives us a better way to combat it. We can control the spread of the disease if we know where the childhood infection originated, by removing the source of exposure.

I may have misunderstood Dr. Hancock. For the sake of information and clarity, I question if it is wise for us to say childhood tuberculosis is a benign and harmless condition, without qualifying the statement.

I think it is a question of arriving at a definite understanding of what we mean by the tuberculin test of the disease. The tuberculin test is the biggest advance made, in locating the one who has been infected. Everybody who has been infected does not necessarily develop the symptoms. We speak of the tuberculous positive individual. He is a potential source of trouble. He is sensitized, and from then on, is in such an allergic state that intense explosive symptoms may develop due to reinfection.

Patients discovered promptly after primary infection may not show physical signs. If we see them later, probably after additional infection, we may be able to demonstrate tremendous enlargement of the glands and evidence of calcification, or peribronchial fibrosis, or evidence of a form of pleurisy which is certainly present in more children than was formerly suspected.

There are findings on which we can depend. There will be no symptoms which will be diagnostic, but there will be symptoms which are suspicious. We do not want to arrive at the idea that we can depend upon the x-ray as such a positive diagnostic factor in childhood tuberculosis, as is the case in an adult type infection. An x-ray of a child must be taken in conjunction with other physical and tuberculin tests, while in the adult, many times from the x-ray alone, it may be possible to diagnose tuberculosis. It is not ordinarily possible from the x-ray alone to diagnose tuberculous infection in children. If it is possible to get it, the history of contact is extremely helpful in arriving at a diagnosis.

Again I wish to congratulate Dr. Hancock and to emphasize the worth to us of these figures on the problem in our own community,. And further to emphasize, that the childhood case of tuberculosis is one that is necessarily a problem from then on, through to maturity.

The mere fact the patient has been infected, and is tuberculo-protein sensitive, renders him in danger from additional infection, either exogenous or endogenous.

DR. HANCOCK, (closing): I want to thank Dr. Murphy for his intelligent discussion drawn out of his own wide experience with this disease. I believe the tendency is more and more to drop the distinction between infection and disease. Dr. Stewart has dropped it, and Dr. Meyers became discouraged when he found he could not distinguish between the two. It is largely a matter of terms. When I say childhood tuberculosis gives no signs on physical examination, I mean the calcified primary type. After more lymph glands are involved, certainly physical signs occur.

As I stated, the x-ray was 25 per cent efficient in discovering childhood tuberculosis.

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## RECOVERY

"Out of the ether, out of the gloom,
Out of the sleep of the surgical room,
Out of the anguish and out of the pain,
Back to us all she comes smiling again.

Done is the doubting and ended the dread.
Gone is the fear from her hospital bed.
Now to her cheeks come the roses to bloom
And the sound of sweet laughter is heard in her room.

Here is a joy only those understand
Who have watched in a hall the clock's slow-moving hand,
Impatiently, nervously, waiting to learn
That safely to them would their loved one return

Joy, sound your cymbal and string up a tune'
Soon she'll be home again! Home again soon!
Out of the anguish and out of the pain.
Back to us all she comes smiling again."

# FLOATING BODIES IN A VEIN

MAX EMMERT, M. D.,
Omaha, Nebraska.

The following case which is unique in the experience of the writer is deemed worthy of report.

Miss B. H., aged 23, a maid in the hospital, was seen November 7, 1934, compalining of lumps in her wrist.

Past history and menstrual life irrelevant. Has been working for one month in the hospital. In the performance of her duties she has at times bruised her forearms by striking the dumb-waiter.

P. I. Two weeks ago she noticed a nodule on a bruised area of the volar surface of the right forearm, which was slightly tender. This remained prominent for two or three days. Two days ago she noticed a small movable body on the anterior surface of the wrist and reported for examination.

Examination. On the volar surface of the right wrist could be seen and felt two small bodies the size of a small pea. These bodies were within a vein passing from the radial side diagonally across the wrist and could be moved back and forth in the vein over a distance of one and one-half inches. There was no tenderness. On the volar surface of the forearm in the region of the median antibrachial vein could be felt a small firm nodule. The vein was not visable. Blood examination—R. C. 4,440,000; W. C. 7,000; Hb. 86%; S. L. 23%; L. L. 8%; N. 65%; E. 4%; Blood Cal. 10½ mg.; Urine 1.009—neutral—alb. faint trace—Acc. crystal.

November 8, 1934. Under local anaesthesia the vein and bodies were removed. The larger body was slightly oblong in shape with a short pointed projection at one end. It was smooth and soft, pearly white in color and blood tinged on one side.

Microscopic—The capsule consisted apparently of fibrin with a few nests of fibroblasts and an occasional leucocyte. The mass consisted of fat globules without nuclei separated by fibrin in the interstices of which were a few leucocytes and fibroblasts. Section through the wall of the vein showed it contained partially organized thrombus. There was no evidence of inflammatory reaction.

## COMMENT

The pathology of phlebitis, thrombosis and emboli has been admirably described. The one causative factor which is accepted by all pathologists is the necessity of injury to the intima of the vein. The resulting thrombus is formed by a deposition of fibrin platelets, red and white cells from the blood stream. At a later period leucocytes and fibroblasts permeate the thrombus from the vessel wall. As organization progresses the thrombus contracts and forces out the serum and free cells and may become surrounded by intima cells from the wall of the vessel. At a still later period after the organization of the thrombus is completed a deposition of calcium may occur with a resulting phlebolith which is frequently noted by x-ray examination of the legs with varicosities and of the pelvis. When the thrombus becomes free in the blood stream it is called an embolus, follows the course of the blood until it plugs an end artery, often with disastrous results to the patient.

Thrombosis of the pelvic veins is especially dangerous because of the absence of vein valves to retard the emboli. The writer has had three embolic deaths in his twenty-five years of experience. They were especially tragic as they occurred when the patient was ready to leave the hospital. If postoperative thrombosis is suspected it is best to keep the patient quiet for three to four weeks in order to allow the thrombus to become organized and to lower the possibility of emboli.

My attention has never before been called to a case in which the emboli moved in a reverse direction with the blood stream. In this case it was probably due to the fact that the vein was plugged by the thrombus. By continuing to use her arms these two emboli were dislodged from the lower portion of the thrombus and from the dependent position of the arm and the force of gravity they dropped until they were retarded by the narrowing vein. The presence of thrombosis in the excised vein was probably a coincidence and not associated with or caused by these emboli. Iwould suggest the name of Phlebilo Corpus for bodies of this character floating in a vein.

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## DEFECTIVE AMMUNITION

When the doctor arrived he found the patient in tears.

"Cheer up, my good man," he said, "you'll pull through."

"It isn't that, doctor," groaned the patient, "but just think of all the money I've spent for apples to keep you away."—London Humor.

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Teacher: "Robert. explain what are the functions of the skin."

Bobby: "The chief function of the skin is to keep us from looking raw."

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Grouchy Patient: "Doctor, I sent for you because I'm in terrible pain—but I warn you I have no faith in you modern doctors. I believe in the faith cure."

Doctor: "Never mind. Your faith has nothing to do with it in this case. You know, a mule has no faith in a veterinary surgeon, and yet the surgeon cures him just the same."

## TONSILS. THEIR FUNCTION AND INDICATIONS FOR THEIR REMOVAL

L. W. Dean. St. Louis (*Journal A. M. A.*, Oct. 6, 1934). states that a study of the tonsil problem requires a consideration of all the lymphoid tissue in the pharynx. If, following the removal of the pharyngeal and palatine tonsils, the child suffers from acute exacerbations of systemic disease, and if, as is usually the case, the acute exacerbations are preceded by acute upsets in the upper respiratory tract, one must realize that there is some condition about the throat. nasal sinuses or ears that is responsible for these acute disturbances of the upper respiratory tract. The most important part of the treatment of heart disease. rheumatic fever, arthritis or chorea in children is the eradication of chronic infection about the upper respiratory tract. In toxic malnutrition, secondary to infection of the lymphoid masses in the pharynx, the infection is the outstanding cause. Given a case of malnutrition secondary to infection about the throat with such symptoms as emaciation and interference with growth, if this infection is eradicated there is often a miraculous return to the normal. A child with rheumatic fever and no infection about the upper respiratory tract may develop fever which can be controlled by the use of salicylates. This is not the case when the fever is the result of infection of the lymphoid tissue. This does not signify that the primary consideration in the treatment of many of the systemic conditions is the eradication of infection about the upper respiratory tract. The removal of the larger masses of lymphoid tissue in the pharynx early in childhood does decrease markedly the incidence of scarlet fever, common colds and otitis. It decreases somewhat the incidence of rheumatic fever. chorea and heart disease in children. It is particularly beneficial in reducing the incidence of cervical adenitis. Because of the importance of determining all sources of chronic infection about the upper respiratory tract in children with such diseases as rheumatic fever, chorea, hemorrhagic nephritis and Still's disease, the author always makes an examination of the nasal sinuses at the time of the tonsil operation in this class of cases. The lymphoid masses of the pharynx have a decidedly important physiologic function. There is no agreement among physiologists as to the function of the tonsils. The lymphoid tissues of the body are all actively functioning in infancy and in early childhood and they continue to function until involution occurs. It may be assumed that before involution occurs the tonsils have performed their main function. The author believes that the tonsils in infancy and early childhood are a part of the defense mechanism of the body. They protect the organism against those factors which cause them to become acutely swollen. Repeated irritations with swelling do cause simple hypertrophy of these structures. When the tonsils undergo involution at the age of puberty they lose their function. Rules cannot be made to determine whether or not tonsils should be removed. Each case presents its own problem. In cases in which infection of neighboring structures, as the middle ear, nasal sinuses and glands of the neck, can be traced to infection of the tonsils. removal of the latter is indicated. Simple hypertrophy of the tonsils may demand their removal in order to get normal breathing. The removal of macroscopically normal tonsils and hypertrophied tonsils with no evidence of infection has favorably influenced cases of hemorrhagic nephritis, uveitis or rheumatic fever. Given a patient with a systemic condition that is often favorably influenced by the removal of infected tonsils and perfectly normal looking tonsils, the author feels that the tonsils should be removed, particularly if the condition refuses to yield to other forms of treatment. In the apparently normal tonsils that he has removed because of a systemic disease, examined microscopically. chronic infection involving the epithelium has been found deep down in the crypts. The evidence of infection found in the crypts is a leukocytic infiltration of the epithelium and underlying lymphoid tissue with some destruction of the protective epithelium. In some cases in which the tonsils have been removed because of simple noninflammatory hypertrophy such areas have not been found. If judgment is based on the systemic condition of the patient. one must be careful not to remove the tonsils when the condition has progressed to such a stage that it is impossible for the removal of infected lymphoid tissue to exert a favorable influence. Rules cannot be laid down for the practice of medicine. There are a multitude of factors bearing on the question as to whether or not tonsils should be removed. The judgment must rest with the individual after a thorough study of the case. If this is most carefully done. the patient need not worry about having a deleterious result from the removal of these structures.

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## A MILK AND BANANA DIET FOR THE TREATMENT OF OBESITY

George A. Harrop, Baltimore (*Journal A. M. A.*, June 16, 1934). proposes a diet having as its basis bananas and milk for the treatment of overweight, on the grounds of simplicity, low cost, ready availability, palatability, high satiety value, low salt content and demonstrated effectiveness in securing the desired aim. The strict diet consists of six large bananas and 1,000 cc. of skimmed milk, to be eaten in three or more meals, spaced according to the personal food habits of the individual. Only fully ripened bananas, i. e., fruit with yellow skin flecked with brown, should be used. Buttermilk made from skimmed milk may be used in place of plain skimmed milk if desired. A salad of one fourth of a medium size head of lettuce, or of any equal quantity of cabbage, with a small amount of mayonnaise dressing made with liquid petrolatum, is a useful and valuable addition at one meal during the period of strict diet. This diet is followed for from ten days to two weeks and usually produces a weight loss of from 4 to 9 pounds. Fluids without food value, including tea or coffee, but without cream or sugar, are permitted freely. Salt is avoided to discourage retention of body fluid. At the end of from ten to fourteen days on the strict diet, alterations may be made as follows: 1. Substitution of one or two eggs, boiled, steamed or poached, salted, with one-fourth square of butter for one or two bananas, as the case may be. If the first period of strict diet is too rigorous, one egg, with one-fourth square of butter, may replace one banana from the outset. 2. Use of from one to four average servings of green vegetables, containing 5 per cent carbohydrate or less. One square of butter melted may be poured over these vegetables at the table, but no butter or fat of any sort should be used in the cooking. 3. Addition of one small portion of any lean meat, fish or poultry, except pork. No thickened gravy is to be used. No fat-containing foods, except the portions of butter expressly mentioned, and no foods containing sugar or starch in any form are to be used. The regimen as outlined is to be followed alternately: from ten to fourteen days of the strict banana and skimmed milk diet is followed by two weeks of the less restricted diet. During the less restricted period, care is taken to avoid regaining weight, but no further loss is desirable. At the end of the less restricted period of two weeks the strict diet is again resumed for two weeks, and so on until the desired loss is made. Although the nitrogen intake is much lower in this diet than in the diets described in current publications, the nitrogen balance has been attained in six cases studied when on the strict diet at the end of one week, and of two weeks. In four it was not, but the nitrogen loss in no case exceeded 2 Gm. a day after the end of the tenth day.

## GASOLINE AND KEROSENE POISONING IN CHILDREN

John A. Nunn and Frank M. Martin, San Antonio, Texas (*Journal A. M. A.*, Aug. 18, 1934), discuss the clinical and laboratory examinations in seven cases of gasoline poisoning and sixty-five cases of kerosene poisoning. The total mortality of the cases was 11 per cent. Among the kerosene poisoning cases it was 9.2 per cent, while in the gasoline cases it was 28 per cent. In the fatal cases the children lived from two to eighteen hours after the ingestion and the aspiration of these substances. All the children who died showed definite clinical evidence of pathologic changes of the lung; namely, many moist rales in both lungs, rapid, shallow respirations and cyanosis. About one third of the patients who had swallowed a large enough quantity of the substance to become sufficiently ill to require hospitalization had also aspirated some of the fluid. The patients who aspirated, as well as ingested, one of these petroleum products presented a much graver clinical picture, owing to the rapid development of pneumonitis, which was evidenced by cough and many moist rales throughout both lungs. In the fatal cases there were physical signs of pneumonitis. It is believed that the pneumonitis was produced by the irritating properties of these substances, while the marked evidence of involvement of the central nervous system is due to the rapid and overwhelming absorption of the volatile fractions by the pulmonary circulation, this absorption being facilitated by the thin permeable alveolar wall. The symptoms of gasoline and kerosene poisoning are apparently produced by the toxic action of these substances on the central nervous system, principally the respiratory center motor areas and the vagus center. There is apparently no loss of oxygen carrying capacity of the blood. The prognosis may be said to be in direct ratio to the amount of the hydrocarbon that enters the lungs, and that if the patient survives several hours he recovers completely. There are practically no complications or sequelae in this type of poisoning. The irritating effects in the lungs and the gastro-intestinal tract disappear completely in from forty-eight to seventy-two hours. Treatment consists of removing as much of the offending agent as possible by gastric lavage or emesis and laxatives. When cyanosis and other signs of respiratory embarrassment are present the use of oxygen (95 per cent) and carbon dioxide (5 per cent) has been of considerable benefit.

# The Nebraska State Medical Journal

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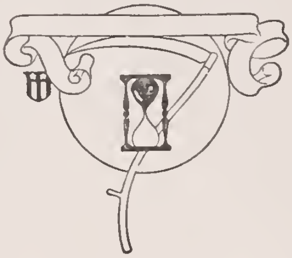

## New Year's Eve

Ring out, wild bells, to the wild sky
The flying cloud, the frosty light:
The year is dying in the night;
Ring out, wild bells, and let him die.

Ring out the old, ring in the new,
Ring, happy bells, across the snow:
The year is going, let him go;
Ring out the false, ring in the true.

—Alfred (Lord) Tennyson.

ANNUAL MEETING
OMAHA
MAY 14, 15, 16

## OLIVER WENDELL HOLMES MEMORIAL TROPHY

At the last annual meeting of the Nebraska State Medical Association, the following communication was presented to the House of Delegates and acted on favorably by the House as indicated:

> "It is the desire of the Obstetrical Department of the University of Nebraska to offer as a stimulation to better obstetric practice, particularly in the lessening of maternal mortality, a cup to be known as the "Oliver Wendell Holmes Memorial Trophy."
>
> This cup shall be awarded each year at the annual meeting of the Nebraska State Medical Association to the councilor district in whose district there has been the least maternal mortality in the year, adjudged on a percentage basis January 1 to January 1, immediately preceding this meeting. It shall be kept by the secretary of that Councilor district preferably in some public place such as a public library, for a period of one year or until the next annual meeting of the Nebraska State Medical Society. It shall be engraved with name of the councilor district to which it has been awarded. This trophy must be won three successive years by the same councilor district at which time it shall become the permanent property of that councilor district.
>
> The percentage will be compiled by a committee from the Obstetrical Department of the University of Nebraska from the vital statistics available and the trophy shall be awarded on that basis."
>
> A motion was made by Dr. Bryson that we accept the offer of the Obstetrical Department of the University of Nebraska. Seconded and carried.

The award is therefore one of the events for the next annual meeting and should create considerable interest and justifiable rivalry among the twelve councilor districts.

Much has been written about the high maternal mortality in the United States as compared with European countries. Statistics are misleading, largely, because in the United States deaths from criminal abortion — many self induced—are charged against the medical profession as neglect or incompetence in medical care; while in other countries the statistics of maternal mortality are based on deaths at term or after viability of the fetus.

This cup award, honoring the immortal Oliver Wendell Holmes who first, in this country, called attention to the infectiousness of puerperal fever, should spur our profession to still greater effort to reduce the maternal mortality in childbirth.

## FOR A BETTER JOURNAL

It may be assumed that *The Nebraska State Medical Journal* is very good, passably good, or very ordinary, as state journals run.

Whatever its status, efforts should be made to better it. To make a better *Journal* every member should help. It is easy to think of the editor as solely responsible for the *Journal* and to feel that Editor "George" should do it. This attitude is wholly wrong. It takes team work to get the best results.

"The Societies" department could be much improved with the assistance of the county or district society secretaries, if promptly after each meeting a report was sent in to the editor. Such a report should touch on the high spots of the program. It is not enough to say that "John Jones read a paper on Chicken Pox." If he brought out some original or special point in the paper it should be mentioned.

What the reader sees of "The Societies" reports in the *Journal* as now conducted is almost wholly derived from press clippings and in many cases is necessarily lacking in the vital elements that attach to the subject.

Officials of the Association from the head down through the entire list of the committees should use the pages of the *Journal* more than they do to the benefit of the *Journal* and of the profession.

All this is just family circle talk for the general good and is to be taken in that way.

## A PHYSICIAN IN THE ECONOMIC CRISIS

If any physicians in Nebraska think there is no hand to mouth economic crisis among Nebraska physicians let them read the following post card message on the editor's desk:

> Would be glad to receive sample copy of the Journal. Am in the heart of the drouth area and collections are the minimum. This, together with a large part of the people on Federal Relief aids in reduction of income. Would like to know price of State Medical Journal. I have been unable to pay state dues since the depression—three bank failures and the dishonesty of clientele engendered by the depression. At present those on FERA relief are living far better than I can.

## AGITATION FOR IMMEDIATE ACTION ON HEALTH INSURANCE

A letter is apparently being circulated by the American Association for Labor Legislation asking those to whom it is addressed to send telegrams immediately to Secretary of Labor Frances Perkins and the President urging immediate action on the subject of health insurance. Apparently the propagandists are not content to await the report of the President's Committee on Economic Security, of its technical staff or of its various advisory boards but desire, regardless of the economic situation of the country as a whole or of any other important factors that may be involved, to jam some sort of legislation through immediately. Physicians whose advice may be asked concerning this appeal on the part of the American Association for Labor Legislation may well inform their inquirers of the desirability of caution and consideration in the development of any new methods of medical practice. Haste and carelessness prompted by evangelistic methods for social legislation must inevitably lead to errors and result in harm to both the public and the medical profession. The experience of every foreign nation precipitated into a sickness insurance scheme is evidence of the unfortunate possibilities that are incurred in the precipitous adoption of revolutionary measures.

—Jour. A. M. A., Dec. 15, 1934.

Editor's note: Supposedly inside information is to the effect that the advisory committee of seven appointed to assist the Committee on Economic Security consists of two men known to be loyal to the American Medical Association's views and five who lean toward health insurance.

## CRETINISM IN THE UNITED STATES

A summary of the study of cretinism in the United States by Arnold S. Jackson of the Jackson clinic, Madison, Wis., reads as follows:

> A preliminary survey of 512 cases of cretinism in the United States is presented. It is believed that many more cases exist but have not been reported.
>
> In 1921 Gordon found 340 cases in the American literature; subtracting those reported for Canada as well as possible duplications there are now reported approximately 752 cases of cretinism in the United States.
>
> The incidence of cretinism and of goiter in America has increased steadily since 1900. In certain states or localities these diseases have been checked and have possibly decreased as a result of iodine prophylaxis against goiter.
>
> On account of the economic depression many localities have discontinued providing funds for prophylactic iodine treatment of goiter.
>
> Medical science has not disproved the contention of Fodere who 134 years ago stated that "goiter is the first degree of a degenerative process in which cretinism is the last step."
>
> The generally used terms "sporadic" and "endemic" cretinism should be discarded, since they indicate merely a difference in degree of the same disease or the extent of its geographical distribution.
>
> Cretinism as found in Europe and Asia now occurs in the United States. It is increasing but is neither as prevalent nor as severe, because its antecedent, goiter, has existed here but a comparatively short time. There has been less intermarriage between goiterous families in this country.
>
> It is desirable to prevent the further increase of cretinism and goiter by prophylactic measures directed at the latter.

## THE PULPLESS TOOTH

In our survey this year in July, all dental colleges in America were asked the following question: "How many dental pulps and pulpless teeth have been treated in your college clinic for the session 1933-34 which has just closed?"

The following reports are listed in the order in which they were received:

| | | |
|---|---|---|
| 1. | Philadelphia, Temple University | 900 Cases |
| 2. | Ohio | 110 Cases |
| 3. | Oregon | 676 Cases |
| 4. | Michigan, 1932-33 | 832 Cases |
| 5. | Southern California | 250 Cases |
| 6. | San Francisco | 50 Cases |
| 7. | New York | 1006 Cases for 925 patients |
| 8. | Toronto, Ontario | 250 Cases |
| 9. | St. Louis | 500 Pulp Canals filled |
| 10. | Dallas | 8 Cases |
| 11. | Illinois (10 to 12 Cases per student) | 550 Cases |
| 12. | Buffalo | 104 Cases |
| 13. | Iowa (65 Operators) | 137 Cases |
| 14. | Philadelphia, Uni. of Pa. (168 Operators) | 550 Cases |
| 15. | Milwaukee (4 Cases per student) | 211 Cases |
| 16. | Nebraska, 12 illustrative Cases (by the Faculty) (Students are not allowed to treat pulpless teeth in Clinic, is reported by members of the graduating classes.) | |
| 17. | New Orleans | 367 Cases |
| 18. | Kansas City | 118 Cases |
| 19. | Minnesota | 450 Cases |
| 20. | Creighton (Exact number not available; however, "We are doing more than in past years.") | |
| 21. | Chicago | 1895 Cases |
| 22. | Atlantic, Southern | 253 Cases |
| 23. | Pittsburgh | 3528 Treatments for 960 patients |
| 24. | Montreal | 108 Cases |
| 25 | Tufts College | 250 Cases |

The outstanding features are:

(1) That the teaching to fill root canals under improved methods is on the increase.

(2) That there is only one school in America which denies this practice to its students.

(3) There are a few dentists and physicians who yet cling to the idea that extraction is the only remedy for the pulpless tooth.

(4) Most of our great American Universities report that they are now teaching methods of saving teeth with indications of local, as well as general, health, following the operation. The writer believes the importance of the operation warrants an increase in the number of pulp cases per student in each college.

Next year's questionnaire will include the subjects of therapy and surgery in pulp canal management. Would it not bid for advancement in this subject to establish a clearing house for experimental cases at some one of the centrally located endowed university laboratories? We believe much service would result to the profession and to the public.

—W. Clyde Davis (D. D. S.), Lincoln.

## *MEDICO-LEGAL*

### *Better Preparation for Legal Medicine*

Another forward step in legal or forensic medicine was taken when a session was devoted to this important subject at this year's Cleveland session of the American Medical Association.

With the increasing complexity of modern life and the additional burden placed upon human behavior, there is increasing need for the physician to be better prepared in those portions of his practice dealing with his relation to his profession, society and law. The body of information useful in this sphere is grouped under the title of Legal Medicine, or Forensic Medicine. It is "the application of medical knowledge to questions of law."

The physician of today, in rural district or industrial center, must make decisions and render opinions where medicine and law meet. He must know something of the laws governing the use of alcohol and narcotics. He must decide the cause of sudden or violent death. The question of the commitability of a demented patient may be raised and he must know something of the procedure. He must study the relation of disease and disability to occupation. These and many other instances might be cited to exemplify the numerous points of contact between the doctor and the courts.

The need of more and better knowledge of legal medicine is being recognized. During the past few years there have been a number of important steps taken in this country to better prepare the physician to solve problems in this field. Among these are the endowment of a chair of legal medicine in the Harvard Medical School in 1932, the establishment of a Department of Forensic Medicine in New York University in 1933, and the organization of an elementary course in Legal Medicine at the University of Illinois Medical College in 1931.

Contrasted with the development of legal medicine abroad, efficiency in this branch in our country has until recently been at a very low ebb. A well established system of legal institutes on the continent has provided a scientific type of work and proven of great value in the dissemination of information among general physicians and lawyers, as well as providing training for medicolegal experts.

The need of proper centers for teaching this branch in this country is evident. A survey of the recent developments in the field of medical education indicates that the need will be met.

B. Carl Russum, Omaha.

## NEBRASKA COUNTY BOARDS GIVEN ANOTHER LESSON

The case of Dr. Frank A. Burnham, Arnold surgeon, against the County Commissioners of Lincoln County, Nebraska, decided by the supreme court of Nebraska, is another lesson for county boards:

*"In an emergency requiring an operation to save the life of a pauper, the surgeon should, if reasonably possible, attempt to communicate with the proper county authorities charged with the care of the poor, but if the emergency demanding immediate operation be exigent, the necessary service may be rendered, and the law imposes an obligation upon the county to pay the reasonable value of such services."*

The case arose from an operation on a 16 year old boy of an indigent family.

When Dr. Burnham examined him he had been vomiting, had a temperature of 97, a very slow pulse, a hard, rigid abdomen, and symptoms of great pain. These signs indicated a rupture of some kind of the alimentary tract and suggested an immediate operation. It was discovered that the abdomen was full of fluid and food particles floating free. A hole about the diameter of a lead pencil was found about an inch above the lower opening of the stomach through which the food was escaping into the abdominal cavity. There was a great deal of inflammation. Peritonitis had already set in. The opening in the stomach was closed, the abdomen was cleaned, and a rubber tube was inserted for drainage. The patient's condition was very grave. It was not known for thirty-six hours whether he would survive. A nurse stayed with him constantly during that period. After that he had the usual hospital attention. Pneumonia set in and lasted a week. He was in the hospital three weeks.

No authorization for the operation or hospital services was secured by plaintiff. There was no time for that. The condition of the patient was so critical and the necessity for immediate operation was emergent. The boy was already suffering severely from the shock. To have refused the operation and to have required Miss Miller to drive him to a hospital at North Platte (a much greater distance from the home than to Arnold) would have caused much more food to "have been shaken out of the stomach; the operation would have been delayed that much more, and the shock would have increased." As the doctor put it, "That simply isn't done" where it is "suspected the patient has a rupture." The ethical, the professional, the humane, the conventional thing is to operate at once."

Under the statutes it would have been the duty of the authorities of Lincoln county to provide the necessary medical services for the patient in their own county. On the authority of Miller v. Banner County, 127 Neb. ———; 256 N. W. 639, it would have been the duty of the county authorities of Lincoln county to have authorized the operation and hospitalization of this patient in Custer county. After the services were rendered the board of county commissioners refused their consent by disallowing reasonable bills for these services. The refusal was, in the rather unusual circumstances, arbitrary. In the Miller case, above cited, we said: "In an emergency requiring an operation to save the life of a pauper, the surgeon should, if reasonably possible, attempt to communicate with the proper corporate authorities charged with the care of the poor, but if an arbitrary refusal is given, or if such corporate authorities be noncommittal, the necessary services may be rendered nothwithstanding, and the law imposes an obligation upon the county to pay the reasonable value of such services."

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## THE SURVEY-GRAPHIC DISCUSSES BUYING HEALTH

While the country looks forward to the recommendations of the President's Committee on Economic Security, with its national advisory council and collaborating committee of physicians, *Survey-Graphic* brings out a special December number, "Buying Health" which gathers together for the first time formulations of policy that have appeared in the last six months from one professional body after another. They are impressive evidence of the mounting interest and conflict in group medicine and health insurance. Last summer statements of policy came in rapid succession from the American College of Surgeons (June 10); American Medical Association (June 12); The Committee on Economics, Canadian Medical Association (June 22); American Dental Association (August 9).

President Roosevelt's message in June made security of health an issue of national policy. Survey Graphic discloses how by fall it had become an issue in politics. It cites a pre-election editorial entitled The Doctor and the Legislator, in the *Journal of the American Medical Association*, which warned its readers to scrutinize carefully the view of the legislators they intended to support at the polls and to keep them steadily informed of their "feelings." At the same time a bulletin signed by the secretary of the association, Dr. Olin West, went out to secretaries of the state and territorial medical associations and editors of state medical journals, declaring, "Since the American Medical Association and many of its constituent medical associations have gone on record in opposition to sickness insurance, it is extremely desirable that the views of the organized medical profession should be made known to members of Congress and to candidates for re-election."

Lengths to which "feeling" runs is shown by an editorial exhortation of *The Journal of the Indiana State Medical Association:*

"Let us inquiringly search out the legislative mesquite and the administrative underbrush and unmistakably brand with blackball votes this coming fall those mavericks whom we have reason to suspect of long-haired theories and pop-eyed reforms as regards goose-stepping the medical profession. Politely, yet firmly insistent, let us present the wool-gatherers with one-way tickets to their farms and forges and ribbon-counters and trash-littered desks and dust-covered law books."

In contrast the *New England Journal of Medicine* declared editorially:

> ". . . . . The strange feature of the situation is that doctors have seemed to be willing to wait for others to put into operation regulations governing medical practice, in the face of the history of other countries."

For lay opinion, a sharp newspaper editorial is quoted. "Shall we plow under every third hospital bed?" asked The Philadelphia Record when the American Hospital Association met in the city and listened to reports of private institutions half-empty because of the financial inability of people to make use of them. "Such an editorial is one of many straws in a strong wind that is blowing in the direction of practical action," writes Mary Ross, editor of the special number; and goes on "Perhaps in the spirit ot the times, one might add—Shall we colonize our half-employed doctors and nurses in Alaska? Or set them up on subsistence homesteads?"

"What we spent in 1929 for the scanty service," Miss Ross points out, "was very nearly enough to have provided adequate care for everyone who needed it with an adequate return to the professions who typically, even then, were so badly paid. A social solution of our insecurity in sickness costs is a far simpler matter than the solution of many of the other great insecurities with which we are faced, for it means in general a redistribution of the expenditures to which we are accustomed, rather than the assumption of new costs."

Recent developments are listed in the field of practical action opened up by the five years' study (1927-1932) of the Committee on the Costs of Medical Care, under the chairmanship of Dr. Ray Lyman Wilbur, member of the Hoover Cabinet and president of Leland Stanford. Voluntary arrangements for group insurance against hospital costs have grown by leaps and bounds during the past year. In some parts of the country similar voluntary plans for physicians services also have made a thriving start. The report of the Committee on the Grading of Nursing Schools brought recommendations for greater organization of that profession's services. Within a few weeks a legislative commission in California will bring in a report on state health insurance. Dr. Wilbur is quoted:

> "Does it make any real difference to the doctor whether his payments come from collective savings rather than from the pocket of a patient, who has usually, through illness, lost his earning power? I have hopes that a consistent and intelligent discussion of the health insurance problem here in California will lead to its trial. . . ."

In Michigan, the State Medical Society has pioneered in formulating a state-wide plan described by the Society's former secretary, Dr. Frederick C. Warnshuis.

Voluntary use of the insurance principle *Survey-Graphic* points out is the basis of the plan of the Michigan State Medical Society, and of programs approved in principle or practice or both by a growing number of other state medical societies. It is the basis of the principles laid down by the American College of Surgeons last June, and is consistent with the principles adopted in August by the House of Delegates of the American Dental Association.

Compulsory health insurance, rather than voluntary, is the basis of the plan before the Canadian Medical Association, as well as reports offered by lay groups in this country, including the American Association for Social Security and the technical staff of the Milbank Memorial Fund. The proponents of compulsory health insurance point to experience abroad and under our own use of workmen's compensation measures as an indication of the greater economy and effectiveness of a compulsory system, from the viewpoint of the community, the employers and insured. A study by the staff of the Milbank Memorial Fund indicates that a comprehensive and adequate compulsory service, including the services of general practitioner, specialist, nurse, general and special hospital, drugs, basic dentistry, laboratory and so on could be obtained at a cost of about $27 a year if the entire population were insured, and for less if all but the well-to-do are covered. That $27 is little more than the average of $24 a year that Americans have been accustomed to pay privately for such services, though all classes, and especially the lower income groups, receive inadequate amounts of care.

Analysis of these sets of recommendations leads the *Survey-Graphic* to underscore that each maintains so far as professional service is concerned the personal relationship between doctor and patient which the American Medical Association so often has emphasized. "Compulsory" or "voluntary" in respect to any of these proposals applies merely to payment; there is no measure in any of them to require physicians to work under the plan, to limit the patient's choice of a physician or the physician's acceptance of a patient. All insisted on professional direction of professional services and on the exclusion of commercial intermediaries.

In an article on "Medicine's Right to Control," William Trufant Foster, director of the Pollak Foundation for Economic Research, declares:

> "Nobody proposes to turn over medical services to the control of politicians. Nobody contends that a board of aldermen should decide when to operate for appendicitis. Nobody wishes to disturb, in the slightest degree, those precious personal relations between the individual patient and the individual practitioner. Doctors' bills, however, are not among those precious personal relations; and they are not medical services. . . . If by the 'right to control its own affairs' the organized profession means the right to decide how consumers of medical services shall pay for those services, the profession is demanding a kind of control which is granted to no other profession."

Other contributions, from laymen and professionals, are "The Public's Impatience" by Lee M. Merriman, city editor of the Pasadena (Calif.) Post; "The Old Family Doctor—And the New" by Nathan B. Van Etten, M. D. (New York City), vice-speaker of the House of Delegates of the American Medical Association; "We Believe in Group Medicine" by Dr. Rexwald Brown, surgeon of Santa Barbara, founder of a clinic for group medicine in that city, and one of the medical advisors of the President's Committee on Economic Security: "The Challenge of Socialized Medicine" by Dr. Joseph Slavit (New York), chairman of The Medical League for Socialized Medicine: "What of Dentistry?" by Bissel B. Palmer, D. D. S.. president in 1934 of the American College of Dentists; "I Speak as a Nurse" by Elizabeth C. Burgess, past-president of the National League of Nursing Education; "Half-Empty Hospitals" by Dr. N. W. Faxon, director of the Strong Memorial Hospital in Rochester, N. Y., and 1934 president of the American Hospital Association; "How I Got That Way: An Employer's Viewpoint" by Edward A. Filene, president of William Filene's Sons Company in Boston and founder and president of the Twentieth Century Fund; "Can Health Be Bought?" by C. E. A. Winslow, professor of public health at the Yale School of Medicine, and chairman of the Committee on Administrative Practice of the American Public Health Association; "We Learn From Workmen's Compensation" by Dr. R. G. Leland, director of the Bureau of Medical Economics of the American Medical Association; "How Europeans Pay Sickness Bills" by Michael M. Davis, director for medical services of the Julius Rosenwald Fund, Chicago.

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"God and the Doctor we alike adore,
But only when in danger, not before;
The danger o'er, both are alike requited—
God is forgotten and the Doctor slighted."

## EDITORIAL PARAGRAPHS

Diphtheria of the skin is reported in a case at the Craig Colony of epileptics at Sonyea, New York.

Colonel Bailey K. Ashford, Medical Corps, noted for his investigations on hookworm, died November 1, 1934.

The next Nebraska basic science examination will be given January 8 and 9, University College of Medicine, Omaha.

At the Clinical Society, St. Louis, November 9 and 10, Dr. J. E. M. Thomson, Lincoln, was reelected secretary-treasurer.

Omaha will entertain the next annual meeting of the Nebraska State Medical Association and the dates will be May 14, 15 and 16.

It is stated on the authority of the Director of Housing that one-third of the population live in structures unfit for human habitation.

Dr. Roy H. Whitham, Lincoln, has been appointed to a place on the program committee, vice Dr. A. L. Miller, Kimball, unable to serve.

A serum for the cure of undulant fever has been developed in the Cincinnati College of Medicine. Twenty cases are reported treated with the serum.

Call for Dues: The annual dues to the Nebraska State Medical Association are now payable. Send $5.00 plus your county society dues to your county secretary.

The paid membership of the Nebraska State Medical Association for 1934 was 1,105, a considerable gain over 1933. The association will again reach its normal membership.

Call for Papers: If you wish to read a paper before the next annual meeting, please send your name and title of paper to Dr. R. B. Adams, Secretary, Center McKinley Bldg., Lincoln, Neb.

A typewritten paper of six pages, double spaced, on ordinary letter head paper will take 20 minutes to read. By this rule you may gauge your paper to be read at the next annual meeting.

Two members of the Nebraska State Medical Association will sit in the present Nebraska Legiislature—Dr. H. B. Cummins, Seward, and Dr. F. J. Kasper, Prague. We look to them to guard the interests of the medical profession.

Olpp (*Medical Record*, Nov. 7, 1934) reports treatment of over 400 cases of gastric and duodenal ulcer with intravenous use of 6 cc. of emetine daily for ten days and then after a week's intermission gave three more injections.

The annual Councilor's meeting, which is really the business meeting of the Nebraska Medical Association will be held at the Cornhusker hotel, Lincoln. January 14.

The Nobel prize in medicine was recently awarded jointly to Drs. George R. Minot, William P. Murphy, Boston, and George H. Whipple, Rochester, for their studies in pernicious anema.

Dr. William H. Park, New York City, believes he has developed a serum which will immunize human beings against infantile paralysis. It has been proven that it immunizes, but whether immunity is permanent is not yet known.

Dr. Wendell C. Phillips, New York City, President of the American Medical Association in 1926, died the last of the year just ended, aged seventy-seven years. He was a dynamic personage and did much for organized medicine.

Before the Clinical Congress of the American College of Surgeons, Johnson and Young, Boston, reported that the injection into the peritoneal cavity of amniotic fluid from four to six hours before an abdominal operation prevents the development of peritonitis.

From a recent Saturday Evening Post editorial we gather that there has been an increase of drunken drivers in New York State of 25%, Pennsylvania 77%, and Rhode Island 100%. This is, however, mild compared with Cincinnati 380%, and Los Angeles 490%.

The first successful operation in America under spinal anesthesia was performed December 18, 1899, by Matas, of New Orleans. The patient, a young Negro with hemorrhoids, received two injections of one c. c. of one per cent cocaine in normal saline, five minutes apart. There was complete anesthesia from the waist down, and the patient made an excellent recovery.

The January *Journal* has a number of new advertisers: Petrolager; General X-Ray Corporation; Ralph Sanitarium, Kansas City; Philip Morris Co. The latter ad has a coupon attached which if filled out and returned to the advertiser will show the interest of Nebraska physicians in the product and may indirectly bring the *Journal* more advertising. Do your duty!

In anticipation of the duties of the presidency of the State Medical Association, Dr. C. A. Selby, the president-elect, has submitted to President Bixby his resignation as councilor of the Eleventh Councilor District. President Bixby has appointed Dr. Otis R. Platt of North Platte, to succeed Dr. Selby as councilor of the Eleventh District for the remainder of the unexpired term.

Strauss and LaPorte in the *New York State J. Med.* Dec. 34, report a case of pernicious anemia in a Negro, a very rare disease in the Negro race. By the intramuscular injection of liver extract and liver diet the red blood count increased from 1,600,000 to 4,100,000 in forty days and the hemoglobin count rose from 36 Sahli to 62 Sahli in the same length of time. The man gained 26 pounds in the same length of time.

Dr. J. Harry Murphy, Secretary, Omaha, announces that the Nebraska State Pediatric Society meets in Omaha on the second Thursday of the month with a dinner at 6 o'clock. The policy of the program committee for the winter meetings will be directed towards filling the programs by guest speakers on subjects related to Pediatrics. but not necessarily medical. It is felt that the interest in such subjects should be very vital in aiding in keeping in better touch with allied fields of activity.

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## OBITUARY

**Edson L. Bridges,** Omaha; Nebraska University College of Medicine, 1896; practitioner at Wausa for upward of ten years; after a year spent in study in Europe, he located in Omaha in association with his brother, the well known Dr. W. O. Bridges, (now retired); connected with the Nebraska University College of Medicine in a teaching capacity for twenty-five years; the last few years as head of the department of internal medicine; president the past year of the Omaha Midwest Clinical society; sometime president of the Omaha-Douglas County Medical society; active member, Nebraska State Medical Association; an able physician and a man of high moral principles; died of apoplexy at Honolulu where he had gone for a vacation, December, 1934, aged about sixty years. A widow and son survive.

**Lee Cowan,** Atchinson, Kans.; Ensworth Medical College, St. Joseph, Mo., 1906; practitioner at Falls City, Nebr., in association with his brother, Dr. S. D. Cowan, for about eight years previous to 1923; a specialist in eye, ear, nose and throat affections; died December 10, 1934, in St. Louis, aged about fifty-one years. A widow and two sons survive.

**Thomas B. Stutzman,** (retired), Moore, Mont.; native of Ohio; Bennett Medical College, Chicago, 1879; in practice in Illinois, Nebraska and Montana, during his active career, sometime in practice at Davenport, Nebr.; said to have been a devoted practitioner and a man interested in the local affairs of the community in which he served; died recently, aged about eighty-four years. A widow and four children survive.

**Ira H. Dillon,** Topeka, Kan.; native of Unionville, Mo.; University of Illinois, College of Medicine, 1898; in practice at Auburn, Nebr., from date of graduation until 1917 when he entered the Medical Corps of the Army as a captain in which service he was promoted to major; chief of the Nebraska Bureau of Health for four years following the war; located at Wellington, Kans., for seven years doing eye, ear, nose and throat work; for the last three and one-half years eye, ear, nose and throat surgeon at the Santa Fe hospital at Topeka; a man interested in all the civic affairs of the community in which he lived; mayor of Auburn, Nebr., in 1903-04; a man of the highest integrity; former member, Nebraska State Medical Association; and sometime councilor of the Third Councilor District; died rather suddenly November 16, 1934, aged about sixty-one years. Interment at Auburn, Nebr. A widow and two daughters survive.

**Julian R. Blackman,** Salt Lake City; native of Peoria, Ill.; Johns Hopkins Medical School, Baltimore, 1906; on the faculty of the University of Wisconsin, for some time following his graduation; in practice in Hastings, Nebr., from 1912 to 1921 with the exception of one year's service in the medical corps of the Army during the World War; associated with Dr. A. F. Tyler, Omaha, in x-ray work from 1921 to 1927; for two years in fellowship in the Leland Stanford University Medical college; in practice in southern California for a time; lately in service with the veterans hospital at Salt Lake City; former member of the Nebraska State Medical Association; a man of breadth of learning and interest in the general affairs of life; died suddenly of cerebral hemorrhage while on duty in the hospital, November 11, 1934, aged about fifty-six years. Interment at Hastings, Nebr. A widow survives.

## RESOLUTION HONORING THE LATE DR. AUGUST FREDERICK JONAS

In the passing on November thirteenth, Nineteen hundred thirty-four, of Dr. August Frederick Jonas, the Omaha-Douglas County Medical Society has lost a past president and an honored and distinguished member.

Whereas, Dr. Jonas during his forty-seven years of practice, proved himself a leader of such marked ability and skill in surgery as to be ranked one of the foremost surgeons with an international reputation, due to his many publications on surgical subjects;

The Society, realizing it has suffered irreparable loss desires to express its admiration of this distinguished colleague, a scientist, and a gentleman learned in arts and literature who, in his daily teaching of medical students and in a life devoted to the high ideals of surgery, gained for himself the respect and admiration of all.

It is therefore resolved that the members of this Society offer this tribute to the memory of Dr. Jonas, loyal and devoted friend and skillful surgeon whose services to humanity will long be remembered by those whom he served so well.

Be it further resolved, that these Resolutions be spread upon the minutes of the Omaha-Douglas County Medical Society; that they be printed in the Nebraska State Medical Journal and a copy thereof be forwarded to the members of Dr. Jonas' family.

J. P. LORD,
JOHN R. NILSSON,
GLENN MILLER.

November twenty-seventh,
Nineteen thirty-four.

## AUXILIARY NEWS NOTES

Under the auspices of the Medical Auxiliary, Dr. John Allen of Omaha accompanied by Mrs. Allen spent the day of December 7th in a flying trip over Richardson County, speaking in eight different high schools as follows: Stella, Shubert, Verdon, Humboldt, Dawson, Honey Creek, Salem and Falls City. His subject was "Prevention of Tuberculosis." The school children above the fifth grade in each town were assembled in one room at the hour arranged, with the splendid co-operation of the School Superintendents; Dr. Allen spoke fifteen minutes in each school. In the evening the Christmas Seal Pageant was given in the High School Auditorium at Falls City under the direction of Miss Dorothy Weaver assisted by other high school teachers. The twelve scenes depicted the changing styles and music through the two decades from the inauguration of the Christmas Health seal as an aid in the fight on tuberculosis. Scenes and songs carried the audience from the days of the first automobile and the gay, light operas of the early 20th century down through the war period, the jazz age, etc. Songs of the 20-year period were revived and large Christmas Health seals, as issued for each year were a part of the presentation. While the tickets were free, admission was only by tickets. These were mailed to the presidents of all women's clubs in the county. Preceding the pageant Dr. Allen spoke to adults on the same subject.

The Health Department of the Falls City Woman's Club conducts the sale of Christmas Seals and they co-operated with the Auxiliary in the evening's program. The department uses the local proceeds of the Seal Sale to buy milk for undernourished children in the city schools.

* * * * * *

Mrs. W. W. Arrasmith and Mrs. H. C. Wengert were co-hostesses to the ladies' auxiliary of the Tri-County Medical Society at its monthly meeting, held November 19 at the home of Mrs. Arrasmith. Eight members were present. Mrs. W. D. McGrath, president of the Auxiliary, presided at a short business session. Later the group was favored with two interesting and instructive talks. Miss Dorcas Hoge, city bacteriologist, discussed the inspection of milk and Dr. Mary Price Roberts spoke of her work as visiting teacher in the Grand Island school system.

* * * * * *

For the November meeting the Medical Association and the Auxiliary were entertained at a bountiful turkey dinner at the home of Dr. and Mrs. W. E. Shook at Shubert. Dr. Shook is President of the County Society and Mrs. Shook Chairman of the Educational Committee of the Auxiliary.

* * * * * *

The Woman's Auxiliary to the Douglas County Medical Society presented a Christmas Seal Festival officially opening the twenty-seventh annual Christmas Seal Campaign the evening of Tuesday, November twentieth, at the Central High School Auditorium.

A history of the Christmas Seal was given in a monologue by Mr. John Chappel and the styles current since the inception of the Seal were displayed by members of the Auxiliary and others interested in this most worthy cause.

Appropriate music was furnished by the Meyers-Hodek Orchestra, Mr. Walter Cassel being the soloist, and by Miss Swanson's Glee Club from Central High School. Mr. Robert Brinkema directed the production.

Through the efforts of Mrs. C. R. Kennedy as chairman, this proved to be a gala event.

* * * * * *

Through the efforts of a local member of the Auxliary the Presbyterian Ladies' Aid society of Madison put on a Christmas Seal program, December 7.

* * * * * *

These notes were compiled with the assistance of Mrs. W. D. McGrath and Mrs. O. F. Lang.

—Mrs. Roy H. Whitham.

# TUBERCULOSIS ABSTRACTS

## BRONCHIECTASIS—A SEPTIC TANK

The causes of bronchiectasis have long been a subject for discussion, pathological studies, and clinical research. These causes are well known, even if not conclusively proved, and they therefore do not need comprehensive presentation here. There are a few features, however, that do not seem to be generally recognized.

Broadly speaking, the etiological factors generally considered responsible for bronchiectasis include:

1. Congenital factors,
2. Infection, including predisposing causes thereto, foci in sinuses, teeth, tonsils, etc.,
3. Pathological changes in the bronchial wall,
4. Pathological changes in the peribronchial tissues,
5. Obstruction: trachea, bronchi, glottis,
6. Stagnation of secretions,
7. Positive endobronchial air-pressure.

To these should be added a factor largely overlooked, namely, (8) the viscosity of certain bronchial secretions.

In a well developed bronchiectasis three groups of organisms are involved: (1) the primary organisms in the primary focus; (2) the secondary saprophytic organisms that reduce viscosity; and (3) the organisms producing the pus that results from irritation of the bronchial mucosa by the biochemical products of the saprophytes.

The last of these groups has not been generally recognized. When a mucous membrane, such as the bronchial mucosa, is kept in contact with any irritant material, pus is produced. The dilated bronchial sacs are in effect what the sanitary engineer calls septic tanks in which the biochemical products of the saprophytic organisms reduce the viscosity of the secretion, irritate the mucosa and produce pus swarming with organisms. The putrefactive organisms are not the primary ones but enter by way of the inspired air and by means of secretions of the mouth that are normally inspirated by everyone during sleep.

### OBTAINING SECRETIONS FOR STUDY

The unsatisfactory results of bacteriological studies on bronchiectasis have been attributed to oral contamination, but another factor is that the primary pus is not expectorated at all because of its high viscosity. It remains in the bronchiectatic septic tank until its viscosity is reduced by putrefaction.

Obviously, the method of obtaining material for bacteriological study is important. By means of the bronchoscope the superjacent pus, which always contains a variety of secondary organisms is first aspirated. Then when additional pus is forced in from the peripheral bronchi by the tussive squeeze (cough), this is collected separately. In it the saprophytes are relatively few and the odor usually is absent. In the residual pus are usually found the important organisms, time after time the same in the same patient. Vaccines prepared from them are of relatively much higher therapeutic value as compared to those from either sputum or the superjacent pus.

Bronchiectatic sputum is generally described as not being very adhesive. This may be true of expectorated sputum but not of the pus when first produced in the bronchi. Before saprophytic changes have taken place in the "septic tank" bronchiectatic pus is of tremendously high viscosity. This tenaciousness is a basic etiological factor in the disease. Because of it the pus cannot be efficiently expelled by cilia or bechic blast until its viscosity is diminished by putrefactive processes. The septic tank is not only a receptable for septic materials but a container where bacterial processes change the character of the contents. These changes in the secretion constitute nature's way of rendering it easier of expulsion by reducing its viscosity. Unfortunately, however, they also render it more irritating and the stagnation of this irritating material promotes pathological changes in the bronchial walls, and thus constitutes an important etiological factor in bronchiectasis. The bronchiectatic septic tank exacts a fearful price for drainage.

### PROPHYLAXIS AND TREATMENT

The removal of the viscid pus with a powerful aspirator should be instituted early in any suppurative disease of the bronchi. If, after the acute stage of any bronchial or pulmonary infection is over, there is not a progressive improvement in the signs, symptoms and roentgen-ray findings under medical care and management, including as it should postural drainage, bronchoscopic drainage should be instituted once or twice a week. This will often restore the defensive power of the lung and thus turn the tide.

To this should be added the administration of vaccines prepared from the material removed by the bronchoscope from the depths of the suppurative focus. Opiates that annihilate the cough reflex and drugs, such as atropin, that thicken the secretions should be omitted.

Of utmost prophylactic importance is of course the elimination of infective foci in the teeth, tonsils and nasal accessory sinuses. It has been abundantly proved that in suppurative diseases of the bronchi and lungs the source of the infection is a focus in the region of the upper air-passages and there is much evidence to show that the route travelled is by the lymph channels as well as the air-passages. Prophylactic measures, therefore, are wisely undertaken, (1) before the onset of suppurative bronchial disease; (2) after the first bronchial symptoms; and (3) after bronchiectatic conditions have developed, to prevent reinfection and recurrence.

As in the prophylaxis of tuberculosis, all details of continuous medical care and management are of utmost importance; but they need no enumeration here. They should include prolonged daily rest in bed under outdoor conditions to increase resistance and build up a reserve.

It is of fundamental prophylactic importance for early diagnosis of every bronchopulmonary disease that every case of cough be run down to a definite cause and a definite lesion if possible. This is hypothetically admitted but practically it is not often done.

The prognosis is greatly improved by the use of bronchoscopic methods including (1) study of the local pathological conditions; (2) the elimination of the aggravating processes of the septic tank and (3) the discovery and cure of obstructive conditions.

If prophylaxis has been neglected and the septic tank condition has been established thorough study with the bronchoscope, including search for the underlying cause and an appraisal of the damage already done, is advised. Separate specimens are taken of the superjacent pus and the residual pus. Vaccines are prepared from the organisms predominating in the residual pus.

Local medication, using diluted neoarsphenamin, acriflavin, or other germicides may be helpful. The usual management of bronchiectasis is, of course, essential. The patient should be kept in bed under outdoor conditions the greater part of the day. Postural drainage should never be neglected and if possible it should be used at every coughing paroxysm. The cough should not be inhibited; in fact when a patient feels a paroxysm of coughing coming he should at once assume the most favorable posture and assist expectorative efficiency to the utmost.

The Bronchiectatic Septic Tank, Chevalier Jackson and Chevalier L. Jackson, Amer. Rev. of Tuber., Dec., 1934.

## THE SOCIETIES

The regular meeting of the **Omaha-Douglas County Medical Society** was held in the Medical Arts Auditorium, November 13, 1934, President Rudolph Rix in the chair.

The program for the evening was a symposium on "Medical Care for Low Income Families," the introductory remarks being made by President Rix. He approached the subject generally from three angles, "What I See, What I Hear, and What I Think." He pointed out the fact that the problem confronting the medical profession in Omaha is nation-wide and cited instances of what other cities and other Societies are doing, as well as what leading economists and physicians are writing and thinking. In closing his remarks, Dr. Rix urged that the entire group give serious thought and consideration to the problem and not be content to allow the committee alone to wrestle with it.

Dr. John R. Kleyla opened the symposium by speaking on "The Role of the Dispensary." He spoke of the differences that have come in the dispensary through the years and pointed out that the dispensary is a very important unit of the medical school of today. He disclaimed the idea that many physicians have that the dispensary is robbing them of what is rightfully theirs. He pointed out that the growth in the dispensary has not been out of proportion during years of depression and cited several factors which have contributed to its growth, namely, the demand for higher education, the high grade service given by the dispensary, the fact that people are more health-minded, the establishment of health agencies in schools, homes, and business, which make recommendations for clinic service. Dr. Kleyla stated that it was undoubtedly true that a few people received free service who were able to pay, even where an investigation of those seeking admittance was made. He closed his discourse with two recommendations: (1) That the standards for admittance be lowered somewhat. (2) That there may be a more rigid system of investigation of patients seeking admittance.

Dr. J. Jay Keegan talked on "The Role of the Social Agencies." He pointed out that there are three viewpoints to be considered,—that of the clinics themselves, that of the social welfare agencies, including the patient and that of the private physician. Dr. Keegan pointed out the fact that the social agencies do a worth while piece of work and that most of the criticism has come up simply because the physicians have suffered during depression just as everyone else has suffered.

Dr. Beck closed the symposium, speaking on "The Role of the Private Physician." He contrasted the status of the physician of today with that of the family physician of yesterday. He pointed out that the attitude of the layman of today is changed from that of yesterday. He wants the highest type of service, and, in fact, demands it. Dr. Beck stated that it was his belief that physicians themselves are largely responsible for the situation today. They allow various fraternities to give free service. They assist in the establishment of various types of clinic service. He stated that it was his opinion that the physicians would receive the consideration they demanded. He urged that the physicians should not have an established fee for services, but should charge patients in accordance with their ability to pay.

Dr. Lord, Dr. Fouts, Dr. Brown and Dr. Bruening, a guest from the Dental Society, took part in the discussion which followed.

A regular meeting of the **Omaha-Douglas County Medical Society** was held November 27, 1934.

Dr. Lowell Dunn was called upon to introduce the guest speaker for the evening, Dr. Walter L. Palmer, Professor of Medicine, University of Chicago, who addressed the Society upon "Peptic Ulcer, an Experimental and Clinical Consideration." The meeting was then opened for discussion and questions. Drs. Wilhelmj, Hill, Davis, Bliss, Rix, Sachs and McIntire joined in the discussion which followed. Dr. Palmer then closed the discussion.

The President called for a rising vote of thanks from the Society in appreciation of Dr. Palmer's fine address.

—Abstr. Bulletin for December.

**The Omaha-Douglas County Medical Society** annual dinner was given at the Fontenelle hotel December 12, with around two hundred physicians present. Dr. John Lawrence, Director Washington University clinics, St. Louis, spoke on Adequate Medical Service to the Community.

Combining business and pleasure, members of the **Tri-County Medical** association representing Burt, Dodge and Washington counties, gathered in Oakland November 26. Forty-three persons, the doctors and their wives, banqueted in the basement of the M. E. church, the dinner nicely prepared and served by the married folks' Bible class.

Decorations had been carried out for the banquet and a brass quartet gave musical numbers during the dinner.

Papers were read by Dr. Morrow of Fremont, Dr. L. E. Sauer of Tekamah, and Dr. M. Nielson of Blair. General discussions on these papers were also held.

As a guest of the association at the meeting was Dr. Homer Davis, of Genoa, councilor of the third district, who spoke to the group.

The Burt county medical unit later reelected all officers of the previous year. Dr. L. Morrow of Tekamah is president, while Dr. S. A. Swenson and Dr. Benson of Oakland are vice president and secretary, respectively.

At the Benson home a program was carried out. Included were singing numbers by the Ekstrand sisters' trio, a reading by Jeanette Swenson, a clarinet and flute duet by Louise Benson and Arlene Magnuson, dancing by Phyllis Stauffer, and piano numbers by Barbara Benson.

**The Adams County Medical Society** gave a complimentary stag dinner to the entire membership of the Tenth Councilor District and some other near neighbors, December 5, at the Ingleside State hospital. Free dinners always draw and the table seats were filled. Dr. Adolph Sachs, Omaha, spoke on Jaundice and Dr. Carl Russum, Omaha, on the Underlying Pathology of Jaundice. Aside from the dinner and the scientific program, the social feature of rubbing elbows and greeting medical friends was worth while.

**The Eleventh Councilor District Medical Society** held the annual election of officers on December 13, 1934. The officers elected for 1935 are as follows: President, Dr. Joel Anderson, North Platte; Vice-President, Dr. T. J. Kerr, North Platte; Secretary, Dr. H. H. Walker, North Platte; Treasurer, Dr. E. W. Fetter, North Platte.

**The Lincoln County Medical Society** held the annual election of officers at the Pawnee Hotel in North Platte, on December 13th, 1934. The following officers were elected for the ensuing year: President, Dr. J. C. Newman, Wallace; Vice-President, Dr. Joel Anderson, North Platte; Secretary-Treasurer, Dr. H. H. Walker, North Platte; Delegate, Dr. A. V. Wortman, Curtis; Alternate Delegate, Dr. C. F. Heider, North Platte; Censor, Dr. A. T. Sudman, North Platte.

**The Thayer County Medical Society** held its regular meeting at the Blue Valley Hospital, Hebron, December 13th. Dr. W. I. McFarland was host to the society at a seven o'clock dinner before the meeting.

Dr. M. F. Schafer, Alexandria, was elected president for the ensuing year; Dr. L. E. Grosskopff, Deshler, vice-president, and Dr. R. F. Decker, Byron, was re-elected secretary-treasurer for the fifteenth year. Following the business meeting, Dr. E. B. Reed, Lincoln, presented an illustrated lecture on "Pernicious Anemia" and Dr. O. A. Reinhard, Lincoln, spoke on "Colitis and Irritable Colon."

"Symposium on the Kidney" was the subject of a scientific meeting which followed the regular monthly dinner of the **Hall-Merrick-Howard Medical Society,** held November 22 at the St. Francis hospital, Grand Island. Dr. B. R. McGrath presided; Dr. J. G. Woodin discussed medical treatment of kidney diseases; Dr. W. J. Arrasmith, surgical treatment, and Dr. Amil Johnson the pathological aspects of kidney diseases.

**The Richardson County Medical Society** and the Womans Auxiliary thereto held their regular monthly meeting in Shubert, November 21, and were guests of Dr. and Mrs. Shook at a turkey dinner given at their home.

After the dinner, Dr. Paul Forgrave, noted surgeon of St. Joseph, Mo., gave a paper on "Acute Cranic-Cerebral Injuries," followed by Dr. Jacob Kuloski, formerly of the Orthopedic Department of Surgery at the State University of Iowa, but now of St. Joseph, Mo., with a paper on "Bone Infection." Both papers were highly instructive and were enjoyed by the doctors present.

Thirty-two members of the **Fillmore-Saline County Medical Society** were in Wilber November 27 and enjoyed a dinner-program at Legion hall with the local members, Dr. Henry Hein and Dr. R. C. Kirchman as hosts.

Dr. R. K. Johnson of Friend, secretary of the society was toastmaster of the evening and the following program was presented:

The Present Status of the Treatment of Sinusitis —Dr. J. W. Thomas, Lincoln; The Treatment of Asphyxia Neonatorum—Dr. Elmer M. Hansen, Lincoln; Treatment of the Acute Gallbladder—Dr. H. J. Lehnhoff, Lincoln; Observations of a Country Secretary —Dr. Fred W. Buckley, Beatrice.

The banquet was served by the ladies of the American Legion Auxiliary. The visiting doctors were very enthusiastic in their praise of the entire affair.

The banquet menu: tomato cocktail, baked ham, scalloped potatoes, salad, string beans, pickles, rolls, kolacky, pumpkin pie, coffee, cigars.

**The Sixth Councilor District Medical Society** met in Wahoo November 19. A symposium on Diabetes was given, papers being read by Dr. Frank Conlin, Dr. E. J. Kirk, Dr. Wm. H. Stokes, and Dr. Alfred Brown, all of Omaha. Preceding the meeting a very splendid dinner was served by the ladies of the Methodist Church. There were about sixty doctors in attendance.

## HUMAN INTEREST TALES

Dr. L. W. Bowman, Alliance, has been ill recently.

The Doctors Lewis at Red Cloud are about to open a hospital.

Dr. S. E. Cook, Lincoln, has been hospitalized for some time.

Dr. John Westerhoff, Carleton, is recovering from a recent illness.

Dr. Thomas Baker, formerly at Holdrege, has located in Galesburg, Ill.

Dr. J. S. Taylor, Fairbury, was a patient in his own hospital for some time.

Dr. R. H. Lodor has moved from Syracuse to Wayne to engage in practice.

Dr. C. F. Hollenback, Benson, has been elected president of the local Commercial club.

Dr. Valentine Davis, son of a well known Albion physician, has located at Newman Grove.

Dr. Louis Katzberg, Red Cloud, has been appointed to the staff of the Ingleside State hospital.

Dr. and Mrs. M. B. Wilcox, Holdrege, are spending several months in the Los Angeles area of California.

Dr. Mattie Arthur, Omaha, dean of Nebraska medical women, is confined to a hospital with a broken hip.

The wedding recently of Dr. J. Meredith Boomer, Omaha, and Miss Naomi Schleiger, Lincoln, is announced.

Dr. W. E. Lamb, Sprague, is doing propaganda work for the Townsend plan of old age pensions in this state.

Dr. A. F. Tyler, Omaha, gave a talk on "Some European Observations" before the Falls City Rotary club, November 27.

Dr. and Mrs. Charles Lucas, Shelton, spent five weeks visiting their daughter in California, returning the first of the year.

Dr. T. L. Gritzka, Talmage, and Miss Lila Maude Lehman, Formosa, Kansas, were married at the latter place, November 18th.

Dr. A. C. Johnson, Omaha, spoke on "Preparation for a Surgeon" beforethe Pre-Medic club of the Municipal University a short time ago.

Dr. G. N. Nilsson is about to leave Bloomfield and locate in Omaha, where he has a special surgical connection in one of the hospitals.

Dr. J. T. Myers, Omaha, spoke before the Wahoo Lions club recently taking for his theme the spread of infections from animals to man.

A fellowship in the American College of Surgeons was conferred on Dr. Theodore Peterson, Holdrege, at the recent convocation in Boston.

Dr. B. W. Greenberg, New York City, has taken over the eye, ear, nose and throat office and clinical equipment of the late Dr. W. F. Eckles, York.

Dr. Leo O'Kane of Fullerton and Miss Adelle Sindelar, Howells, were married December 3. Dr. O'Kane is medical officer at the CCC camp at Fullerton.

Dr. Edwin B. Banister, formerly of Omaha, now located at Appleton, Wis., has recently undergone a cholecystectomy at Rochester and is now convalescing at his home.

Dr. Earl C. Sage, following the meeting of obstetricians at New Orleans, took a boat trip to Havana, through the Panama Canal and up the west coast to Los Angeles and San Francisco.

Dr. and Mrs. F. A. Long, Madison, kept open house to their friends December 2, in celebration of their fiftieth wedding anniversary. About one hundred and fifty people braved a snow storm to participate in the event.

Dr. H. B. Morton, formerly in practice at Sedalia, Missouri, has recently become associated with The Lincoln Clinic at Lincoln, Nebraska. This is the group originated by Drs. Welch, Rowe and Lehnhoff. Dr. Morton will specialize in surgery and urology.

## BOOKS RECEIVED

THE AUTONOMIC DISEASES or THE RHEUMATIC SYNDROME by T. M. Rivers, M. D. Octavo, 299 pages. Published by Dorrance & Co., Inc., Philadelphia, Pa. Price $3.00.

TREATMENT BY DIET by Clifford J. Barborka, B. S., M. S., M. D., D. Sc., F. A. C. P., Department of Medicine, Northwestern University Medical School, Chicago; Formerly Consulting Physician, The Mayo Clinic. The purpose of this book is first, to present to physicians a concise, practical and systematic method of prescribing diets and applying treatment by diet to health and disease; second, to aid the physician and dietitian in teaching the individual patient how to make a selection of the proper amount and type of food that has been prescribed for him. 16 mo. 615 pages, illustrated. Published by the J. B. Lippincott Co., Philadelphia. Price $5.00.

THE GOITER PROBLEM

# THE NEBRASKA STATE MEDICAL JOURNAL

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**ANNUAL MEETING, OMAHA, MAY 14, 15, 16**

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## AN ANALYSIS OF GOITER CASES AT THE UNIVERSITY HOSPITAL

CHARLES E. GURNEY, M. D.,
Department of Surgery, University of Nebraska College of Medicine,
Omaha, Nebraska.

The purpose of this paper is to observe a few interesting facts regarding the findings in goiter cases as they occur in a general hospital practice. The University Hospital accepts charity cases from all counties within the state so that these findings might be representative of a cross section of the thyroid cases in the state of Nebraska.

From the opening of the University Hospital in 1917 to January 1st, 1934, there have been admitted to this institution a total of 47,450 cases which includes all of the branches of medicine. Three hundred and twenty patients were found to have some pathology of the thyroid gland. Not all of these thyroid cases, however, required surgery so that finally only 270 cases received surgical treatment. While this is not a large series several points of interest may be brought out.

In this group there are 205 females and 65 males—a ratio of about 3½ to 1. The youngest case was fourteen and the oldest was seventy years of age.

Many classifications for goiter have been devised but the one which is used in this paper has been adopted by the American Association for the Study of Goiter. It is a descriptive classification based upon the clinical findings rather than upon the microscopic pathology of the gland as many of the previous classifications have been. It divides all cases of goiter into four major groups depending upon form and toxicity of the gland. The groups are:

1. Diffuse non-toxic.
2. Diffuse toxic.
3. Nodular non-toxic.
4. Nodular toxic.

This classification is far from ideal because after all it divides cases into certain arbitrary groups depending upon the skill of the examining physician, in determining the form and toxicity of thyroid enlargement. Many times there is no complaint of thyroid enlargement and the examining physician can barely palpate the gland, thus giving him little basis for grouping in this classification. In spite of this the clinical picture may be typical of thyrotoxicosis and the case must be classed as a form of "toxic goiter."

Some classifications have been based upon pathology. But this is not ideal because of the marked discrepancy in the findings, not only between the various parts of the gland but between microscopic findings and clinical history. One part of the gland might show a normal tissue, while another might show hypertrophy and hyperplasia or some other type of pathology such as fetal adenoma or colloid. It is interesting to note that in some of these groups there is very little correlation between the pathological findings and the clinical history. In the frank cases of toxicity the pathologist usually finds some evidence of hypertrophy and hyperplasia. In 174 cases which might be classed as definitely toxic glands clinically the pathologist found evidence of hypertrophy and hyperplasia in 130 or 74%. Conversely there were cases where typical microscopic findings of toxic thyroid existed but where the clinical picture certainly did not warrant a diagnosis of toxic thyroid.

Hyperplasia and hypertrophy are commonly regarded as evidence of cellular activity yet pathologists have difficulty many times in differentiating the toxic from the non-toxic adenoma.

Any grouping according to etiology is out of the question at present because of our lack of knowledge concerning the cause of goiter in general. Therefore in the following cases the history, physical examination and laboratory findings were carefully tabulated and evaluated before the case was placed in one of the above mentioned groups. For the sake of convenience percentages are used rather than actual figures. Almost one-half of the cases fell into the second group while the other half was about equally distributed between the first, third and fourth groups.

Group I. The diffuse non-toxic or commonly called colloid group constituted 18% of the series. The ages varied from fourteen to fifty-nine years. Over one-third of the cases was found in the age group thirty-one to forty years. The average was thirty-four years. Remember that this age represents the time at which the goiter was removed and not the time when it was first examined by the physician. Many of these cases had been seen years before but since they had no definite toxic symptoms surgery was not resorted to.

The most common complaint in this group was that of goiter occurring in over three-fourths of the cases (77%). The second most frequent complaint was nervousness in 60% and the third was palpitation in 33% of the cases. Other symptoms in order of their frequency were loss of weight, dyspnea, choking sensation and fatigue.

It was mentioned above that enlargement of the thyroid was the most common complaint. Its duration in these patients varied from four to thirty-four years with an average duration of fifteen and one-half years. Almost three-fourths of these patients had some thyroid enlargement by the time they had reached twenty years of age and over 90% of them had a goiter before they had reached thirty. In no case was thyroid enlargement first noticed after the age of forty.

Since this is considered a non-toxic group one expects to find a relatively low pulse rate and basal metabolic rate. The pulse varied from 70 to 100 with an average of 79. The basal rate varied from minus 20 to plus 30 with an average of plus 14. The basal in all of these cases was taken on the morning after admission.

The microscopic pathology in these cases varied widely. The majority however were termed "colloid" by the pathologist. About one-fifth showed hypertrophy and hyperplasia while others showed chronic inflammation, fetal adenoma, colloid adenoma and normal thyroid tissue.

Group II. The diffuse toxic gland or commonly called exophthalmic goiter constitutes an interesting group. It comprised almost half of the entire series. The ages varied from fourteen to seventy. Three-fifths of these cases were operated upon betwen the ages of twenty and forty—the distribution being rather even during this period.

The most frequent symptom in this second group was nervousness which was present in about 85%. The second was weight loss and the third was palpitation each in about 60%. Other symptoms in order of their frequency were weakness, dyspnea, exophthalmos, increased appetite, tremor, tachycardia, goiter and choking sensations. Other symptoms which were present occurred in less than 10%. One's attention is called to the large number of symptoms in this group as compared with the preceding non-toxic glands.

While the symptom of goiter ranked first in the preceding group it dropped here to sixth place occurring in one out of three cases. This is not surprising if we remember that this is a toxic group and the toxic manifestations usually attract the patient's attention before any discomfort in the neck. However the examining physician was able to find some enlargement of thyroid in 80% of these same patients. Since toxic symptoms preceded the onset of thyroid enlargement, at least as far as the patient was concerned, it is easy to see why these patients did not carry their goiters as long as those in group one. While it averaged fifteen years in the first group it was only six years in this group.

One interesting observation is that exophthalmos, which used to be considered one of the chief symptoms of this disease, was the seventh most common sypmtom and occurred in about one-third of the patients (32%). Cases of this type are evidently being diagnosed earlier—before exophthalmos occurs.

Another interesting thing is that 59% of the patients complained of loss of weight while at the same time 24% of the group had a voraceous appetite. The only other common condition in which we see this paradox is in diabetes mellitus.

Increased perspiration and heat intolerance is usually thought of in connection with diffuse toxic goiter but in this series each occurred in less than 10% of the cases. The pulse range was from 80 to 140 with an average of 102. The basal metabolic rate varied from zero to 100 with an average of 51% or 37 points higher than the previous group. This coincides with clinical observation that the pulse rate is a fair indicator of the degree of toxicity, although it is not always true that the basal metabolism parallels the pulse rate. A careful analysis of five hundred basal metabolism tests shows definitely that one is not able to judge with any degree of accuracy the basal metabolic reading by observing the pulse rate alone. In general however, the higher the pulse rate—the higher the degree of toxicity and also the basal. The pathologist reported definite hyperplasia and hypertrophy in three-fourths of these cases. This is the only group where there seems to be a close correlation between clinical symptoms and microscopic pathology. The remainder showed colloid, adenoma and normal tissue.

Group III. The nodular non-toxic, commonly known as the benign adenoma constituted 17% of the series. The age varied from twenty-one to sixty-four, the most frequent age period being from forty-one to fifty.

Here again, as in the first group, the most common complaint was goiter and was present in 72% of the patients. These patients carried their goiters much longer than either of the preceding groups because most of them had a goiter before age thirty but they were not operated upon until after forty. The next most common complaint was nervousness in 58%, while in the third and fourth were dyspnea and weight loss each occurring in 35%. Other symptoms in order were palpitation, weakness and choking sensations.

Since this is considered a non-toxic group one would expect a low basal metabolic rate. This was found to be the case. It varied from minus 12 to plus 25 with an average of plus 7. This is about half as much as the average basal for first group. The difference in age might be an explanation for this lower basal. The pulse varied from 70 to 110 with an average of 80.

It is interest to note that out of the whole series of 270 cases there were only three cases of proven malignancies and all of them occurred in this third group. None was diagnosed before operation. All were women. The ages were thirty-two and thirty-eight and forty-three. One had a basal of minus 3, one a plus 5 and the third a plus 10. One had a pulse of 70, another 80, and the third 82. One had carried her goiter for fourteen years, the second twenty years and the third for sixteen years. All had the usual symptoms of this group and apparently nothing in the history or physical findings led the attending surgeon to suspect a malignancy.

Aside from the definite malignancies there was nothing unusual in the microscopic pathology for this group although fetal adenoma was the most frequent report.

Group IV. The nodular toxic or commonly called toxic adenoma group constituted only 15% of the series. The ages varied from twenty-three to sixty-two years, but almost three-fourths were over forty years of age.

The most frequent complaint in this group was nervousness occurring in 83% of the patients. The second most frequent was dyspnea which occurred in 55%. The third symptom was goiter which was present in 52%. Other symptoms in order of their frequency were palpitation, weight loss, weakness and excessive appetite. Exophthalmos occurred in one out of every five cases. Edema of the lower extremities occurred in one out of six.

This group carried their goiters longer than any of the others because while they occurred about the same time, chiefly before thirty, they were not operated until after forty and one-third of them after fifty.

The basal metabolic rate varied from plus 26 to plus 83 with an average of plus 49. It is to be noted that this average is comparable to the average for group two which was plus 50. However the range in group two was much greater—it being from zero to 100 while in this group it was consistently elevated.

The pulse varied from 75 to 140 with an average of 95, only slightly lower than group one.

Although this is considered a toxic group only one-third of them showed any evidence of hypertrophy and hyperplasia under the microscope.

Thus far I have not mentioned blood pressure and pulse pressure. We have heard it said that elevated metabolism tends to lower pulse pressure. This is certainly not the case here. The first and third groups, being non-toxic, have a systolic and diastolic pressure comparable to any non-thyroid group of this age level. However the second and fourth groups, which are toxic, show a definite rise in systolic pressure of fifteen points average. Since the diastolic of all the groups remained about the same this elevated systolic pressure also represents an increase of pulse pressure for the toxic groups.

In the following table the symptoms are arranged according to the frequency with which they occurred—including all the groups. The figures represent the percentage of these symptoms in each of the four groups.

| Symptoms | I<br>Diffuse non-toxic | II<br>Diffuse toxic | III<br>Nodular non-toxic | IV<br>Nodular toxic |
|---|---|---|---|---|
| Nervousness | 60 | 85 | 58 | 83 |
| Goiter | 77 | 37 | 72 | 52 |
| Weight loss | 25 | 60 | 35 | 46 |
| Palpitation | 33 | 58 | 25 | 51 |
| Dyspnea | 22 | 47 | 35 | 55 |
| Weakness | 6 | 47 | 25 | 32 |
| Exopthalmos | X | 32 | X | 19 |
| Choking sensations | 17 | 18 | 15 | 19 |
| Tremor | 6 | 25 | X | 19 |
| Excessive appetite | 0 | 25 | X | 22 |
| Rapid heart | X | 22 | X | 15 |
| Tires easily | 15 | 6 | 6 | 8 |
| Perspiration | X | 9 | X | 11 |
| Edema | 0 | 9 | 0 | 17 |
| G. I. symptoms | 0 | 9 | 0 | 6 |
| Headache | 0 | 6 | 0 | 6 |
| Diff. swallowing | 8 | X | 8 | X |
| Heat intolerance | 0 | 6 | 0 | X |
| Voice change | 0 | X | X | 0 |
| Insomnia | 0 | X | 0 | X |
| Cough | 0 | 0 | 0 | X |
| Diff. talking | X | 0 | 0 | 0 |

X—Occurred in 5% or less.

## SUMMARY

1. In the past sixteen years at the University Hospital there were 3½ times as many women operated upon for thyroid disease as there were men.

2. Aside from the frank toxic goiters there is very little consistency between the clinical picture and the microscopic findings.

3. Malignancies of the thyroid occurred in less than 1%. The three cases were all nodular enlargements in middle aged women. None showed toxic symptoms.

4. There is a slight but definite elevation of pulse pressure and systolic pressure in both of the toxic groups.

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# THYROID HEART: ITS PROBLEMS AND TREATMENT*

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An increase in our basal metabolism would, no doubt, be a welcome experience for most of us if it were not for one serious objection. That, as you all know, is the harmful effect the toxin of the exophthalmic goitre has upon the heart. The nature of the reaction is not clear. It does not produce characteristic histological changes in the heart muscle, nor does it produce cardiac hypertrophy or dilatation to any appreciable degree. Yet, that the toxin has a harmful effect upon the heart is an established fact even in the milder form of the disorder.

In order to meet the increased metabolic needs in hyperthyroidism, there is an increase in the pulse rate with an increase in the minute volume output of the heart and velocity of blood flow. The heart rate is increased and remains elevated during sleep. In patients with uncomplicated hyperthyroidism the mean blood pressure remains normal, but there is an elevated systolic and a lowered diastolic pressure resulting in an increased pulse pressure. The apex impulse is forcible but diffuse and the first sound at the apex is increased in intensity and snapping in quality.

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*Read before the Omaha-Douglas County Medical Society, October 9th, 1934.

In the presence of thyrotoxicosis and a regular heart ryhthm congestive heart failure is extremely rare. The most common abnormal rhythm is auricular fibrillation although auricular flutter, paroxysmal tachycardia, and extrasystoles are observed at times. The increased metabolism of the myocardium itself probably has something to do with the occurrence of these abnormal rhythms in thyrotoxicosis.

Auricular fibrillation occurs in about 10% of the cases but it is uncommon in patients less than 40 years of age. The auricular fibrillation is usually paroxysmal in type. If the auricular fibrillation is present for a considerable length of time in untreated hyperthyroidism, the myocardial reserve becomes exhausted and signs of cardiac decompensation, such as cough, edema, dyspnoea, and engorgement of the liver develops. The presence of auricular fibrillation should always lead one to consider the possibility of hyperthyroidism.

In patients with a regular rhythm and without cardiac decompensation, the pre-operative medical treatment is rest in bed, Lugol's solution, fluids, high caloric diet, and sedatives. In the rare case with a regular rhythm and congestive heart failure, it may be necessary to restrict fluids and administer a diuretic. Digitalis should be withheld, if possible, and only given to the patients with auricular fibrillation.

Auricular fibrillation with congestive heart failure is definite indication for digitalis therapy. The results are usually very satisfactory especially when the digitalis is combined with Lugol's solution. The Lugol's solution decreases the metabolic rate while the digitalis increases the block between the auricle and the ventricle—the result is a slower ventricular rate and a more optimal cardiac output. The routine pre-operative treatment of a patient with hyperthyroidism, auricular fibrillation and congestive heart failure should be complete rest in bed, Lugol's solution, digitalis, morphine, and restricted fluids. Occasionally it may be necessary to employ a diuretic such as theocin, or salyrgan, or hypertonic glucose solution intravenously.

The pre-operative treatment of patients with thyrotoxicosis is extremely important even in the presence of a regular heart rhythm in view of the fact that auricular fibrillation occasionally develops during the first day or so following operation. Where the heart has been previously compensated, the paroxysmal auricular fibrillation is not serious and a normal sinus rhythm usually is restored spontaneously within 48 hours. In the cases with established auricular fibrillation or the post-operative paroxysmal type, if the auricular fibrillation persists for more than 5 to 7 days following subtotal thyroidectomy, quinidine sulphate may be administered by mouth in an attempt to re-establish normal cardiac rhythm provided evidence of valvular heart disease is not present.

Approximately half of the patients with hyperthyroidism and auricular fibrillation revert to a normal sinus rhythm spontaneously during the first few days of convalescence from thyroidectomy. The majority of the remaining patients can be restored to normal rhythm by the oral administration of quinidine sulphate. It is necessary to administer quinidine early in the post-operative stage—5th to 7th day—in order to obtain the best results. In the absence of any untoward symptoms to a test dose of quinidine sulphate, the drug is administered in 3 grain doses every four hours until the rhythm becomes regular or not over 30 grains of the drug have been given. If the auricular fibrillation persists in spite of the operation and quinidine therapy, the patient may require daily doses of digitalis to maintain a ventricular rate between 70 and 80 beats per minute.

Fifty per cent or half of the patients who entered the University of Nebraska Hospital with a diagnosis of thyrotoxicosis and on whom electrocardiograms were taken showed normal heart tracings. In this series of 100 patients, there was the same number of patients over 40 years of age and under 40 years of age. In the group of patients over 40 years of age, 70% showed abnormalities in their electrocardiographic tracings. Of this 70%, 44% had auricular fibrillation. In the group of patients under 40 years of age, 30% showed abnormalities in their heart tracings as against 70% in the higher age bracket. In other words, the group of patients over 40 years of age with thyrotoxicosis showed abnormal heart tracings two and one-third times as often as the group under 40 years of age. This corresponded with the age mortality statistics in the same group of patients.

The toxin in thyrotoxicosis does not produce valvular heart disease, nor does it produce sclerosis of the coronary arteries or interfere with the conduction of the cardiac impulse through the conduction system of the heart. However, in the age group over 40 years of age, thyrotoxicosis is often associated with generalized arteriosclerosis, hypertension, diabetes, or valvular heart disease due to acute rheumatic fever or syphilis — these diseases would in themselves complicate the heart picture.

Case 1. A housewife, 58 years of age, entered the University of Nebraska Hospital with all the typical signs and symptoms of severe thyrotoxicosis. Her basal metabolic rate was plus 51%. Before her entrance to the hospital she had been given quinidine sulphate in an attempt to convert the auricular fibrillation to a normal sinus rhythm. After two weeks in bed and on Lugol's solution, a subtotal thyroidectomy was done. Following the operation her general condition improved but the auricular fibrillation persisted. On the 22nd post-operative day she was started on quinidine sulphate—2 grains three times a day—on the morning of the 4th day she had auricular flutter. She was dismissed from the hospital on her 26th postoperative day with a diagnosis of auricular fibrillation.

The case is shown in order to emphasize four points:

1. It is certainly unwise to attempt to convert auricular fibrillation to a normal sinus rhythm by the administration of quinidine sulphate in the presence of acute and untreated thyrotoxicosis.

2. Auricular fibrillation is not a contra-indication to operation; on the contrary, auricular fibrillation plus thyrotoxicosis is a positive indication for thyroidectomy provided the heart is compensated and supported before the operation.

3. No patient should be sent home from the hospital following thyroidectomy with auricular fibrillation without first having been given the benefit of quinidine therapy, provided, of course, there is no valvular heart disease, and provided the thyrotoxicosis is controlled. It is very uncomfortable for a patient to go through the remainder of her life with auricular fibrillation if it is not entirely necessary.

4. The patient should be under strict observation during the administration of quinidine in order to observe any untoward symptoms or developments which may arise during the course of the treatment. Repeated heart tracings may be essential to properly follow the course of developments.

Case 2. A housewife, 32 years of age, entered the University of Nebraska Hospital extremely toxic. She was very dyspnoeic and had edema of her lower extremities. She was too sick for a basal metabolic test.

She had had an enlarged thyroid at 13 years of age. At 16 years of age she had a partial thyroidectomy and ligation. She continued to be extremely nervous with palpitation and periods of numbness of her hands. After consulting several medical men without relief she went to an irregular practitioner who, as she stated, really helped her. Following this she had five pregnancies and five normal children. She had very little trouble until 4 months before her entrance to the hospital at which time her husband lost his farm—she became extremely excited and nervous and dated her gradual decline from that date.

Her blood pressure was 200/50. The heart rate was rapid and totally irregular with a deficit at the radial pulse—the auricular fibrillation was confirmed by electrocardiographic tracings. When the patient was turned on her left side the heart rhythm suddenly changed—the heart became so rapid it could not be counted and at the same time the rhythm became absolutely regular. Turning the patient on her back again invariably stopped the paroxysm—the rhythm suddenly shifting from paroxysmal ventricular tachycardia to auricular fibrillation. In spite of rest in bed, morphine, digitalis, and Lugol's solution she died on the 7th day during one of the paroxysms.

This patient illustrates the extreme of abnormal heart rhythms that may develop in acute thyrotoxicosis.

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# PERSISTENT HYPERTHYROIDISM*

## CASE REPORTS

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There are few surgical procedures which accomplish more gratifying and dramatic cures than does subtotal thyroidectomy for hyperthyroidism. This is the more remarkable in the light of the known regenerative propensity of thyroid tissue and in the light of the generally accepted conviction that surgical attack upon the thyroid gland of hyperthyroidism is not a direct attack upon the disease. The operation of thyroidectomy cures, not by striking at the source of the fire, but by "dampering" it. Hypothetically, therefore, it is surprising that hyperthyroidism only occasionally recurs.

In distinction, failure to secure permanent relief from thyroidectomy does occur and with unwarranted frequency, but only occasionally is hyperplasia of the glandular remnants solely responsible for these failures. Much too often these failures are accepted as recurrences of the disease. That true recurrences do occur is established beyond doubt by an abundance of clinical and pathologic data. The most conclusive evidence has been presented by Pemberton(1) who reported three cases of hyperthyroidism which for some time after thyroidectomy were myxoedematous and had grossly subnormal metabolic rates, but returned some months subsequently not only with recurrence of symptoms and signs but also with corresponding elevations of the basal metabolic rates. From these cases he concluded "that as long as there is any viable thyroid tissue, even though functionally inadequate to meet the normal demands of the body, it is capable, under the proper stimulus, of regenerating, even to the point of causing hyperthyroidism."

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That recurrent hyperthyroidism occurs very infrequently and contributes in small minority to the failures of thyroidectomy to cure hyperthyroidism is also well supported by clinical observations and investigations such as those reported by Clute(2) and by Means and Richardson(3). These observers contend that most failures of cure result from inadequate removal of thyroid tissue and consequently hyperthyroidism persists unrelieved, though often continuing in milder form, and represents therefore persistence of the disease and not recurrence. In accord with these contentions is the impression gained from the histories of sixty-eight cases reviewed by the author at the University of Michigan.

Within eight weeks after adequate thyroidectomy, the symptoms of hyperthyroidism will have abated and the basal metabolic rate will have returned to a normal level. If this has failed to occur, we should recognize the presence of too great a residuum of thyroid tissue, and persistent hyperthyroidism, with its likelihood of ultimate progression. If, however, months or years after a prompt post-operative recession of symptoms and the return of the metabolic rate to normal, the symptoms reappear with an elevation of the metabolic rate, we are dealing with a recurrence of the disease. This distinction has not only academic significance but also real clinical importance to those engaged in thyroid surgery, because it provides a basis by which one can evaluate his own results and thereby continually improve his judgment in his future decisions relative to the quantity of thyroid tissue which should be left to carry on in each individual case.

Since there are no definitive criteria upon which to base judgment, the question of how much thyroid tissue should be preserved to establish the patient in a permanently normal thyroid phase continues in a state of controversy. In general, Coller(4), McClure(5), Richter(6), Brenzier(7), and many others are convinced that more uniformly good results and fewer failures of cure result when only a very small quantity of tissue is left, whereas other authorities such as Pemberton(1), Lahey(8), and Haggard(9) advocate greater conservation of thyroid tissue. Specifically, however, these and all surgeons of much experience, vary the quantity of thyroid tissue preserved in each individual case in accordance with their judgment which is determined by the age and general condition of the patient, the degree of hyperthyroidism, the gross appearance of the gland, etc. Some of these factors have been crystalized by Lahey(8). He reports that in ten per cent of cases of hyperthyroidism, the pre-operative administration of iodine fails to produce involution of the gland and that in these refractory cases the resection of thyroid tissue should be quite radical. In cases showing hyperinvolution or in the presence of multiple colloid nodules, and in both very young and old subjects, fairly generous remnants should be preserved.

I have the impression from some clinical experience that there is one group of cases in which very minimal or practically no thyroid tissue should be left. This is the group in which the heart has been damaged considerably as a result of hyperthyroidism. Theoretically, radical slowing of metabolic processes even to the point of hypothyroidism reduces the load upon the heart to a minimum and should, therefore, give the crippled heart optimum rest to favor its restoration. It is interesting that recently, upon this same hypothetical basis, total removal of the thyroid gland has been given investigative clinical trial in several clinics(10) as a therapeutic measure in the treatment of certain heart lesions, unrelated to thyroid disease, notably angina pectoris and congestive heart failure.

As would be anticipated, the results reported by surgeons who more or less routinely leave only a small quantity of thyroid tissue show a lower incidence of both persistent and recurrent hyperthyroidism but a higher incidence of post-operative hypothyroidism than do those of surgeons who preserve larger remnants. Radical resection gives greater assurance not only of fewer cases with persistence of the disease, but also of fewer and milder immediate post-operative thyroid reactions. Seldom is post-operative hypothyroidism a complication of great moment. In most instances, it is merely a temporary condition, and is readily controlled with thyroid extract until the tissue remnants provide adequate thyroid function.

The subject of recurrent hyperthyroidism invites a few remarks regarding a frequently neglected and very important phase of therapy, the post-operative management of all cases of hyperthyroidism. The mere fact that the disease does occasionally recur after a cure has been established and maintained for months or years, suggests that the exciting factor of the disease is still active or has recurred in those cases. It is with the hope of eradicating this unknown factor that each case after operation should receive instructions and definite attention in respect to the elimination of foci of infection, of physical and psychic strain, of social and economic maladjustment and of other possible glandular and physical disorders.

Persistent hyperthyroidism is usually sufficiently troublesome and progressive to demand treatment. Although a few cases can be controlled satisfactorily by the administration of the compound solution of iodine or by x-ray therapy, most of them eventually require re-operation. I have been impressed during these secondary operations by the frequency with which the bulk of tissue to be removed is found in the region of one or both upper poles, and by its appearance of having been untouched at the previous operation. It would appear that in these cases, much of the superior pole had been left and had undergone hyperplasia, also that hyperplasia is more likely to occur in tissue in close proximity to the superior thyroid vessels. I believe, therefore, that one should be absolutely sure that the entire upper pole of each lobe has been included in the tissue removed in every subtotal thyroidectomy.

The histories of two cases of persistent hyperthyroidism treated by the author at the University Hospital follow. They illustrate several of the points discussed above:

## CASE REPORTS

Case I. Mrs. A. J., 32 years of age, was admitted to the obstetrical service of the University Hospital on January 9, 1934, critically ill. She had been perfectly well until eight years previously when she developed an enlargement of the neck which was diagnosed as a goiter. With the onset of her first pregnancy one year later, she became very irritable, restless and easily fatigued. She was distressed greatly with palpitation and sensitiveness to heat and became dyspnoeic with slight exertion. Her appetite became excessive. She became aware of awkwardness in the use of her hands and of a progressive exophthalmus. All symptoms progressed and at the termination of the pregnancy, that is six years ago, she was operated upon. There is no information relative to the extent of the thyroidectomy, but the patient returned to her surgeon two months after operation complaining of a persistence of symptoms and recalls now that they were not appreciably altered by the operation. Re-operation was advised and refused, and in compromise, the neck was irradiated with radium. There was a marked and rapid recession of symptoms and much improvement in her general condition. Nervousness, palpitation and tachycardia did, however, persist, but were not particularly distressing until the onset of her second pregnancy seven months ago. Since then there has been a progressive exaggeration of all the previous symptoms of hyperthyroidism. During the past four months her ankles have become progressively more oedematous and one month ago, her attending physician observed that her systolic blood pressure was 180 mms. of Hg. and that the urine contained albumen. A week later the systolic pressure had risen to 210.

The past history was essentially negative. Both the appendix and the tonsils had been removed several years previously.

Upon admission, the patient was very restless and perspired very freely. There was moderate exophthalmus with associated eye signs and a fixed anxious stare. The throat was clean and the teeth were in good repair. At the base of the neck there was a narrow scar of the previous operation, and above it the skin presented the atrophic changes of excessive radiation. It was tissue paper thin, shiny, pigmented and contained many areas of telangiectasis. On each side of the trachea there was a mass of unusual consistency. Both were hard and yet elastic, slightly nodular and were not fixed to the surrounding tissues. That of the right side was approximately the size of a large lemon and that of the left was slightly smaller. These masses had the hard consistency of Riedel's struma, but differed in that they were nodular. They also lacked the inelastic stony hardness and fixation which characterizes carcinoma. No isthmus was palpable.

The lungs were clear throughout. The heart was moderately enlarged and the sounds were loud and snappy with accentuation of P 2. Throughout the precordium there was a loud systolic murmur. The blood pressure was 200/100 mms..

The abdomen was negative except for a pregnant uterus of seven months. The foetal position was L. Q. A. and the foetal heart rate was 142 and heard in the left lower quadrant. Vaginal examination elicited the usual signs of pregnancy, and no abnormality of the pelvis or birth canal.

There was moderate pitting oedema of both ankles, a marked rapid fine tremor of the fingers, and hyperactive reflexes.

The admission temperature was 99, the respirations 26, and the pulse 138, and corrigan in type. The urine contained albumen 2 plus and a few granular and cellular casts. The Hgb. was 80%; R. B. C. 4,320,000; W. B. C. 9,100; the differential, polys seg. 63, polys staff 13, lymphocytes 20 and monos 4. The blood sugar was 74 mgs., the N. P. N. 27 mgs., the blood chlorides 455 mgs. per cent, the serum protein 3.4, the serum albumen 1.3 and the serum globulin 2.1 mgs. The blood cholesterol measured 136 mgs. per cent and the quantitative urine albumin 3 grams.

The basal metabolic rate was plus 78. Roentgenograms of the chest showed moderate cardiac enlargement, some passive congestion of both lung fields, and no evidence of an enlarged thymus or of substernal prolongation of the thyroid gland. The electrocardiogram presented evidence only of tachycardia with axis deviation.

From this data a diagnosis was made of:

1. Persistent hyperthyroidism.
2. Pregnancy of seven months duration.
3. Nephosis and possibly pre-eclamptic toxemia.

She was treated expectantly with absolute bed rest, sedatives, a low protein and low salt diet, small doses of calcium lactate and potassium citrate, several purges with magnesium sulphate, and repeated short course of digitalis and of Lugol's solution.

The pulse rate remained between 110 and 140 and the systolic blood pressure between 200 and 180 mms. Hg. until February 12, 1934, slightly more than one month after admission. On this day she became alarmingly sick with evidence of a thyroid crisis. Her temperature suddenly rose to 103 degrees, her pulse to 160 and her blood pressure to 220/120, and her urine was loaded with albumen and contained many granular casts. Her condition became progressively more critical until the pregnancy terminated spontaneously on the following day. Immediately, she began to improve and within 48 hours the temperature had receded to normal, the pulse rate to 120, and the blood pressure to 160/100. One week after delivery, the basal metabolic rate had dropped to plus 47 only to mount again a week later to plus 66. The urine continued for several weeks to contain a trace of albumin and a few granular and cellular casts.

On February 21, 1934, the patient was seen in consultation and transferred to the surgical service. Laryngoscopic examination showed normal motion of the vocal cords.

With the continuance of bed rest and sedatives and with the re-administration of Lugol's solution after discontinuing it for a brief period, the basal metabolic rate gradually dropped and became stabilized with the last two readings at plus 33 and plus 35 and the pulse receded to a level between 88 and 115. Thus, having gained optimal recession of hyperthyroidism from pre-operative treatment, operation was performed March 16, 1934. With pre-operative medication of sodium amytal Gr. VI, pantopon Gr. 1/3, and scopolamine Gr. 1/150, gas oxygen anesthesia was administered. A collar incision two fingers breadth above the very low lying scar of the previous operation exposed a dense mass of fibrous tissue which had apparently replaced much of the prethyroid muscles. This tissue was incised longitudinally in the mid-line and retracted laterally, exposing on each side a very hard, slightly nodular mass of pale thyroid tissue. The mass on the right side was shaped like a normal thyroid lobe with upper and lower poles each the size of a lemon. Entering the anterior surface of the upper pole there were large blood vessels which were undoubtedly the superior thyroids. The inferior pole was substernal but delivered with ease. The superior pole was brought down in its entirety and the lobe removed, leaving only a minute quantity of thyroid tissue attached to a wide expanse of capsule. At this point the pulse began to quicken and since the patient had been considered a bad risk, the operation was terminated. Complete hemastasis was obtained and the wound closed with drainage.

The patient made an uneventful convalescence and was discharged ten days after operation for a rest of one month at home before completing the thyroidectomy. Her basal metabolic rate was at this time plus 42.

She returned at the end of a month having gained 14 pounds but still complaining of symptoms of hyperthyroidism. Her basal metabolic rate was plus 60.

On April 27, 1934, the left lobe which was nearly as large as the right one was resected subtotally along with a small remnant of the isthmus. As on the right side, the superior pole was normal in appearance and was attached normally to the superior thyroid vessels. Again only a minute quantity of thyroid tissue was preserved with a wide expanse of capsule. Accurate hemostasis was assured and the wound was closed over a small rubber drainage tube which was removed at the end of 24 hours.

Pathologic report—Follicles vary greatly in size, the smaller ones lined with tall cuboidal epithelium showing hyperplasia. There is an abundance of fibrous tissue stroma, in areas, has replaced masses of thyroid tissue. There is a moderate amount of lymphoid tissues.

The convalescence was uneventful and at the time of discharge, ten days after operation, the basal metabolic rate was plus 14. A month later, the patient reported that she felt perfectly well and for the first time in seven years she felt calm and had no palpitation.

Case II. Mrs. M. G., age 27, was re-admitted to the medical service of the University Hospital, February 16, 1934, complaining of a persistence of symptoms of hyperthyroidism for which she had been operated upon two years previously.

Her illness began in May, 1931, with nervousness, irritabiliity, and cessation of menses. Believing that she was pregnant she disregarded these symptoms until two months later when she noticed dyspnoea on exertion and some swelling of the ankles and was told that her eyes bulged. She then became aware of an enlargement of the neck, of choking sensations, of palpitation, and excessive perspiration and sensitiveness to heat. These symptoms progressed until she was admitted to the hospital. The examination showed a moist skin, moderate exophthalmia, bilateral diffuse enlargement of the thyroid gland, a rapid fine tremor of both hands, hyperactive reflexes, a rapid snappy pulse, a forceful cardiac impulse but no cardiac enlargement, a blood pressure of 120/60 and a basal metabolic rate of plus 52. The tonsils were infected. The uterus was not enlarged, and was normal to palpation.

After eight days of rest in bed, and of the administration of Lugol's solution, 10 mins. t. i. d., the metabolic rate dropped to plus 17 and the pulse to 88 from 110. She was operated upon in December, 1931, and the description of the operation states that 90% of each lobe of the gland was removed.

Although she felt much improved following operation, she was never entirely relieved of symptoms, particularly tachycardia, palpitation and nervousness. During the past six months all symptoms have become as marked as they were before operation.

The examination upon re-admission elicited the signs as noted above with the exception of an increase in exophthalmia (now extreme) and of the appearance of the neck. There was a narrow white scar of the previous operation and a firm, movable nodule on each side of the trachea. The larger mass was in the region of the left upper pole and was the size of a small lemon. Both vocal cords moved normally.

The urine was negative, Hgb. 89%, R. B. C. 4,900,000; and W. B. C. 9,870 with 50 per cent of polys. and 44 per cent of lymphocytes. The basal metabolic rate which upon admission was plus 48 dropped after 12 days of rest in bed and of daily doses of 30 minums of Lugol's solution to plus 11. The pulse rate dropped from 120 to a level below 90.

Operation was performed March 2, 1934, with gas oxygen anesthesia supplemented with sodium amytal, pantapon and scopolamine. The scar of the previous operation was excised and the skin flaps dissected back to give wide exposure of the prethyroid muscles which were retracted laterally on each side. This exposed a hyperplastic pyramidal lobe, two nodules, each the size of an English walnut on the right side, and a hyperplastic intact left upper pole the size of a lemon. These masses of thyroid tissue were excised, leaving only very small remnants attached to broad expanses of capsule.

The neck was closed in layers with drainage and the patient had an uneventful convalescence. She was discharged eight days after operation with instructions to return later for tonsillectomy. Her basal metabolic rate at the time of discharge was minus 6.

Three months after operation she reported that for the first time since the onset of symptoms three years previously, she was enjoying complete relief.

In both patients, the vocal cords were examined before they left the hospital and were found to move normally. They have shown no evidence of hypothyroidism.

The observation made by both patients that they had not experienced complete relief of symptoms until after their second operations is important because it is indicative of persistence of the disease in each case in contradistinction to recurrence.

### SUMMARY

1. It is important to distinguish persistent hyperthyroidism from recurrent hyperthyroidism. Most subtotal thyroidectomies which fail to cure, fail because they have been inadequate and the disease persists because it was never cured. With hyperplasia of the tissue remnants which are already excessive, persistent hyperthyroidism may progress.

When complete cure has been effected from adequate removal of thyroid tissue the disease only occasionally recurs.

2. A few criteria which may influence judgment in regard to the size of the remnant of thyroid tissue to be preserved are cited. Among these is the author's opinion relative to the treatment of cases with gross cardiac damage.

3. Secondary operations are usually more difficult and hazardous than primary thyroidectomies. It is especially important to leave a wide expanse of capsule for the protection of the recurrent laryngeal nerves and parathyroid bodies.

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# HYPERPLASTIC GOITRE WITH TEMPORARY CARDIAC CHANGES

## CASE STUDIES IN GOITRE, NO. VII.

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The cardiac symptoms of toxic goitre are always of extreme interest. Though the other symptoms of the disease may be present in a given case, it is a general rule that the cardiac manifestations override them and are the symptoms which assume the role of greatest importance in the mind of the clinician. Beginning usually as a simple tachycardia the cardiac symptoms may assume various forms as the case proceeds. The most common form is auricular fibrillation which is at first temporary but as time goes on may become permanent. It is of interest to note that the auricular fibrillation accompanying an adenomatous gland is more apt to become permanent than that occurring with a hyperplastic gland. Auricular fibrillation may suddenly pass into auricular flutter at any time under some sudden stress and almost as suddenly disappear. The following case illustrates this:

R. D. University Hospital No. 30166, a male, farmer, aged 37 years, was admitted to the medical service of Dr. George Pratt on November 6, 1929, with the diagnosis of "emergency hyperthyroidism" made by his attending physician Dr. Arthur W. Anderson of Lexington, Nebraska.

Present Complaints: 1. Weakness. 2. Swollen feet. 3. Pain in epigastrium. 4. Vomiting. 5. Cough. 6. Dyspnoea. 7. Headache. 8. Palpitation.

History:

Onset and Development: Eyes have become more prominent since last summer. The patient was in good health previous to August 1, 1929. A few days later he went about his work as usual and became nauseated and vomited profusely. He broke out in a sweat. He became very nervous and weak. He went back to the house and went to bed but remained only the day. The next day the same happening of the day before resulted when he tried to work. Since that time he has done little work but has not been confined to bed. He continued to get weaker with periodic attacks similar to that of the first day. He soon noticed that his feet were swollen at night, disappearing in the morning. His cheeks and eyelids were swollen in the morning and his eyes became prominent. He became short of breath on slight exertion. He coughed spasmodically. The cough was non-productive. During the past two months he has noticed that his heart has been pounding and he has been conscious of an aching in his epigastrium which was aggravated by eating. His appetite has been exceptionally good. The epigastric pain, he thought, was relieved by soda. He has had some diarrhoea and his bowels have been very irregular. He has had nocturia two or three times a night and he states that he has been drinking large amounts of water. His symptoms have become worse the last three months, and November 5, 1929, he had his last vomiting attack.

Previous Illnesses: Childhood diseases: Measles and whooping cough. Other diseases: Pneumonia at eighteen. Frequent sore throats and colds. He had a large abscess on the right side of his neck some years ago which was lanced and then healed. Injuries and operations: None.

Eye and Ear: Negative. Exophthalmia first noticed last summer. Hearing not impaired. Nose and threat: Has had occasional colds and sore throats. His teeth have been badly decayed and he has had several extractions. No epistaxis, discharge, or obstruction. Respiratory: Had pneumonia at the age of 18 years. No chronic cough, sputum, or hemoptysis. No asthma or pleurisy. Cardiac: No history of edema, dyspnoea or palpitation before this last sickness. Gastro-intestinal: He is rather constipated. He has had no nausea and vomiting until lately. He has had some epigastric pain of late. No hemorrhoids, jaundice, or rupture. Genito-urinary: No retention, frequency, or urgency. No burning on urination. No discharge or sores. Denies venereal infection. Neuro-muscular: No shooting, muscular, or joint pains.

Family History: His mother died of tuberculosis. His father of alcoholic heart. No insanity or epilepsy in the family. Two brothers are dead. One was drowned and one had Bright's disease. Sisters: One half-sister living and well. Wife living and well, divorced. Children—none.

Physical Examination: On inspection the patient is very nervous and fidgity. His eyes are bulging. Head: The face is flushed. Size and shape normal. Scalp clean. Eyes: The pupils are equal, regular, react to light and accommodation. Exophthalmos is present. Ears: No deformity, no discharge. Hearing in each ear is good. Nose: Septum deviated slightly to the left. There is no discharge. Mouth: Teeth are badly decayed, several extractions. Tonsils are injected, scarred and partially buried. Neck: Posterior and anterior cervical lymph nodes are palpable. The right lobe of the thyroid is larger than the left and is slightly irregular. Thorax: Expansion is equal and normal on the two sides. Lungs: Percussion note resonant throughout. Breath sounds are normal. Tactile and vocal fremitus normal. No rales. Heart apex 10 cm. to the left of the mid-sternal line in the 6th interspace. Heart action is irregular. There is a pulse deficit. Auricular fibrillation. Abdomen: No masses or spasms. Tympanitic throughout. Liver and spleen are not palpable. Genitalia: No discharge, scars or sores present. Rectal: No hemorrhoids. Extremities: There is a fine tremor of the hands and fingers. There is slight edema of feet and ankles, otherwise negative. Diagnosis: Exophthalmic goitre.

(Signed) Dr. F. Dillenbeck.

The history of this patient on superficial reading would almost at once attract attention to the heart. The irregular pulse, oedema, dyspnoea and enlargement of the heart downward to the 6th space point to decompensation but there are no signs which suggest endocarditis and consequently the cause for the cardiac manifestations should be sought for elsewhere. The history of voracious appetite with progressive weakness and gastric symptomatology at the onset suggest at once a katabolic drive with the thyroid as the causative factor. It is this type of patient who may be treated as a cardiac case for some time. The thyroid condition can be overlooked easily and such a mistake is extremely unfortunate as it is this type of case that needs immediate preoperative treatment followed by subtotal thyroidectomy at the earliest moment in order to save the patient from myocardial changes.

The laboratory findings in this patient substantiated the diagnosis made by the family physician and the house physician.

The urinalysis was negative—straw—specific gravity 1018. Reaction neutral. Albumin—0. Acetone—0. Red blood cells—0. White blood cells—few. Crystals—few. This ruled out kidney changes as the cause of the oedema. The blood showed: Red blood cells 5,460,000, Hemoglobin 80%. White blood cells 7,000. Differential count: Polymorphonuclear 51%. Lymphocytes 46%. Baso 1%. Eosiniphiles 2%. These findings of relative polymorphonuclear deficiency point toward hyperthyroidism.

A. fractional gastric analysis showed complete absence of free hydrochloric acid, as follows:

Gastric analysis

| Rehfuss | Stomach contents | No. 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| Free HCL | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total acid | 2 | 7 | 25 | 20 | 15 | 10 | 8 |

The Basal Metabolic rates at different times before operation were:

| | | | |
|---|---|---|---|
| 11- 7-29 | +71% | +74% | +60% |
| 11- 8-29 | +60% | +61% | +56% |
| 11-26-29 | +27% | +31% | ............ |
| 12- 6-29 | +41% | +43% | +39% |

The laboratory findings substantiated the diagnosis of hyperthyroidism and the problem of preparing the patient for surgery presented itself.

He was given a high carbohydrate diet and ordered excess fluids. On November 8, 1929, Lugol's solution (m.x three times a day) was given and on November 30, 1929, this was increased to m.xv three times a day as the m.x did not seem to be accomplishing the desired result. It is worthy of note that though this patient had complete achlorhydria he was not given hydrochloric acid until December 4th. The weight curve is as follows: On admission 112 pounds, November 21 (15 days later) 106 pounds. November 28 111½ pounds. December 5, 115 pounds. December 12, 116¼ pounds. January 24, (16 days after operation) 122½ pounds. On November 12, 1929, the patient developed a sore throat which lasted a few days.

December 2, 1929. Patient doing nicely. Heart not fibrillating although a few extra systoles are heard.

December 12, 1929. Basal metabolic rate about plus 30%. Heart sounds clear. No fibrillation. Schick test done three days ago reads 1 plus.

At this time the patient seemed in fair condition for operation but owing to a mild cold it was thought better to postpone it until that had passed.

December 17, 1929. Patient's heart is fluttering, very fast regular apex rate with a few dropped beats at wrist. Patient was frightened last night, became dyspnoeic and heart beat fast. Electrocardiogram taken this A. M., December 18, 1929. Heart is regular this morning. Electrocardiogram yesterday showed auricular flutter with two to one block.

December 23, 1929. During the past four days the patient has had the following changes in the heart rhythm occurring in sequence:

Paroxysmal tachycardia, auricular flutter, auricular fibrillation and at present definite regularity.

December 27, 1929. Sudden severe attack of dyspnoea and precordial pain. Doubled up with attacks. Spasmodic twitchings of right leg and jaw noticed. Morphine sulphate grains ¼ given. Heart in definite fibrillation with extra systoles. Great apprehension and pain on the part of the patient causing him to speak of "going back to New York to die." Seen by Dr. Brown who advised caffeine which was given. Ice bag placed over precordium to alleviate pain.

This attack corresponded fairly closely to an attack of angina pectoris and can be explained by a sudden stimulation of the upper thoracic sympathetic nerves which go to the superficial and deep cardiac plexuses and stimulation of these in turn give rise to reflex stimulation of the somatic nerves causing the precordial pain.

The attack passed off in a few days and the heart again became regular.

December 20, 1929. X-ray studies of the thorax with the bedside unit demonstrate an essentially healthy thoracic cage. We find no evidence of gross pulmonary pathology. We see no evidence of pneumonia or infection at this time. The left heart is increased in diameter with flattening of the left border. Moderate cardiac enlargement.

(Signed) Carleton B. Pierce.

January 4, 1930. Nose and throat consultation. Anterior pillars injected. Both tonsils inflamed and pus expressable. Chronic enlargement of lymphatic tissue in the pharynx. Advise tonsillectomy when medical men think patient's physical condition will allow it.

(Signed) Dr. Lemere.

The upper respiratory infection from which the patient had been suffering disappeared and on January 7, 1930, he was referred to surgery as it seemed the thyroid was the most important condition and should be cared for first.

January 7, 1930. Last basal metabolic rate was December 6, 1929, and was plus 40%. Only medication patient gets is Lugol's solution and dilute hydrochloric acid. Heart P. M. I. 10 cm. to left in the fifth interspace. Diffuse and forceful—rate is regular—systolic murmur heard over precordium but loudest at apex. Pulses are regular and synchronous—no dropped beats. Lungs are clear. Patient to be operated on in A. M.

(Signed) Moulder.

Operation was undertaken on January 8, 1930, with considerable trepidation. However, a typical subtotal thyroidectomy was performed under paravertebral anaesthesia and the patient stood it well. The pulse during the administration of the anaesthetic rose to 124 and then fell until at the close of the operation it was 108. The gland was small and on section the cut surface showed a meaty beef steak look.

The day after operation the heart was a little irregular but this soon disappeared and six days after operation the pulse was varying between 80 and 90 beats per minute, and remained so during the remainder of the stay in the hospital which was until January 28, 1930. On January 24 the patient's weight was 122½ lbs., a gain of 10 lbs. over his admission weight, and on January 25th his basal metabolic rate was plus 3%, plus 2% and plus 4%.

The report on the gland. Pathology No. So 30-8.

Gross: All three lobes of the thyroid were submitted. Both right and left measured 6 cm. in length with proportional thickness.

Microscopic: The alveoli differed very considerably in size and in character of their colloid contents. A number of alveoli showed trabecular enfoldings of their walls and some of these were covered with distinct columnar epithelium.

Diagnosis: Apparently exophthalmic goitre.

(Signed) Drs. Weinberg-Eggers.

A follow-up note received in March, 1930, is as follows:

"About March 1, 1930. I did not keep detailed records but condition was entirely satisfactory. Wound completely healed, pulse rate within normal, nervous system still on a tension, heart regular. Voice still somewhat 'thin' and occasionally 'breaks'. Feels good but complains of weakness but was insisting that he go to work. Had a job driving a tractor offered him in the western part of the state and I presume he accepted it as I have not heard of him since."

(Signed) Arthur W. Anderson, M. D.

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# THE MANAGEMENT OF THYROID MALIGNANCIES*

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The pessimistic belief that malignant diseases of the thyroid gland are incurable causes many clinicians to approach this problem with much misgiving and apathy. Surgical measures are considered of little avail and only a few feeble therapeutic attempts are made to give the patient palliative relief.

How different is the story of breast carcinomas! Radical amputations of the breast, excision of recurrent nodules, and active radiological treatment of the local and metastatic lesions have added both to the longevity and comfort of these unfortunate women. Such heroic efforts are frequently rewarded by complete cures. Why, then, should we not extend similar services to patients having malignancies of the thyroid gland? It is true that the anatomical location of the thyroid, with its intimate relationship to the larynx, trachea, esophagus, and to the numerous nerves and great vessels of the neck, quite naturally makes complete removal of the neoplasm very difficult. However, carcinomatous breasts are removed even though the metastatic axillary nodes cannot be completely excised. Complete hysterectomies are performed when cancer cells have permeated the lymphatic structures of the pelvis. Why, then, all the surgical timidity regarding similar lesions of the thyroid gland?

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*Material gathered while associated with Dr. G. W. Crile, Cleveland, Ohio.

## CLINICAL CONSIDERATIONS

It is absolutely futile to elaborate on the various signs and symptoms which are supposed to be pathognomic of malignant goitres for there are none. In a clinical and pathological study of 264 cases of malignant goitres seen at the Cleveland Clinic, I found that in only 45% of the cases were the physical signs and symptoms sufficiently distinctive to warrant even a preoperative suspicion of carcinoma. Even a wide spread thyrogenic metastases can occur and still one is unable to clinically locate the primary thyroid neoplasm. The insidious and asymptomatic transitions from a simple adenomatous goitre to a malignant form certainly renders diagnosis difficult.

To scientifically treat thyrogenic malignancies one must have a clear concept of their etiology, their pathological characteristics, their manner of dissemination and their physiological responses to irradiation therapy.

Dr. Allen Graham has made an histological diagnosis of all cases of thyroid malignancies presented in this paper. They may be classified as follows:

- I. Sarcoma
  - a. Lymphosarcoma
  - b. Spindle cell sarcoma
- II. Sarcoma Carcinoma
- III. Carcinoma
  - a. Scirrhus carcinoma
  - b. Adeno carcinoma, not arising in an adenoma
  - c. Papillar carcinoma
  - d. Malignant adenoma

## SARCOMA OF THE THYROID

(a) Lymphosarcoma is a very malignant tumor arising from the lymphoid structures of the thyroid gland. Because of its rapid growth it soon penetrates the thyroid capsule and involves all the regional structures, as the lymph nodes, trachea and esophagus. Not infrequently the metastatic cervical adenopathy is the first clinical sign that the goitre has undergone malignant degeneration. The prognosis is unusually grave as untreated cases terminate fatally in but a few weeks. Operation alone can seldom effect a cure, but combined with interstitial and roentgen irradiation the progress of the disease can be arrested for several months. Of the twelve cases of lymphosarcoma treated in this manner, two died while in the hospital; of the remaining ten cases, two are still living, ten years and three years respectively; the other eight lived an average of nine months after operation. The following case is representative of this group:

Case 1. Mr. C. L. was 71 years of age. His chief complaint was swelling of the face, coughing and difficulty in breathing. He was unaware of any changes in the size, shape or consistency of his thyroid gland. Examination revealed a small, firm, fixed tumor mass involving the left lobe of the thyroid. There were six small, firm, discrete lymph nodes in the left anterior cervical triangle. Roentgenograms of the chest showed substernal goitre, pushing the trachea to the right. A preoperative diagnosis of a substernal malignant goitre was made.

When doing a partial left lobectomy it was found that the neoplasm had already infiltrated the trachea and metastasized to the mediastinal nodes. While complete extirpation was impossible, the removal of the main tumor mass permitted the trachea to return to its normal position, thus relieving his shortness of breath. During the next eighteen months he received four courses of x-ray therapy to the cervical and mediastinal areas, and he carried on his regular professional duties until one month prior to his death. Such results seem to justify active treatment.

(b) Spindle cell sarcoma. There has been considerable controversy regarding the identity of this tumor. Ewing doubts its existence, while Graham maintains that it arises from the capsule or the stroma of the thyroid. In this series we studied five such cases.

The spindle cell sarcoma grows very rapidly, being restrained only momentarily by the thyroid capsule, and soon spreads to and infiltrates the regional lymph nodes, trachea and esophagus. When the patient is first seen, the neoplasm is so wide spread that it cannot be completely excised, and as the highly differentiated cells are very radio-resistant, the prognosis is hopeless. In spite of the surgical intervention and intensive x-ray treatments these patients died within a period of five months.

Case 2. This patient was 62 years of age and had had a persistent, non-productive cough for five months during which time she had lost nineteen pounds of weight. Four months ago she first noticed a small nodule on the right side of her neck. Otherwise she was perfectly well. Examination revealed a small, firm, nodular left lobe of the thyroid, which was firmly attached to the trachea. The right lobe and isthmus were apparently normal. The cervical glands were discrete but enlarged. A laryngoscopic examination showed paralysis of the left vocal cord.

A biopsy was performed on the left lobe of the thyroid. The neoplasm had invaded the trachea and regional nodes; complete extirpation of the tumor was impossible. Microscopical diagnosis of spindle cell sarcoma was made. In spite of the fact that this was a radio-resistant neoplasm, gold radon seeds were implanted around the periphery of the tumor. All these therapeutic efforts were futile for the patient died one month later.

## II. CARCINOMA-SARCOMA OF THE THYROID

This group of tumors contain both the epithelial and mesoblastic elements. The epithelial structures show changes characteristic of carcinomas and the abundant stroma presents the appearance of a spindle cell sarcoma. They are very malignant, radio-resistant, and clinically cannot be differentiated from other thyrogenic malignancies. In treating five patients having carcinoma-sarcoma, we found the longest survival period was eleven months, the average being three months. Fortunately, such thyroid tumors are rare.

## III. CARCINOMA

(a) Scirrhus carcinoma. Scirrhus carcinoma of the thyroid is much like its twin sister, scirrhus carcinoma of the breast. These neoplasms are usually very small, non-encapsulated and grow very slowly, hence escape clinical recognition until in the later stages of the disease or after glandular metastases has occurred. The insidious tendency to progressively invade the trachea and esophagus frequently destroys the patient, even before metastases to lymph nodes develops.

Being composed of highly differentiated cells, scirrhus carcinoma is very resistant to x-ray therapy. It remains, then, for the surgeon to administer palliative relief by performing tracheotomies and decompressions. The mortality rate in our five cases was 100%, the average post-treatment longevity being but two months.

Case 3. Mrs. I. F. had noticed a painless "lump" in the left side of the neck for two years. It grew very slowly. Eighteen months ago she became very hoarse and since then has had difficulty in breathing. Six months ago she noticed a mild dysphagia and now can swallow only liquid foods. The left lobe of the thyroid was very firm, nodular and attached to the trachea. Esophagoscopic studies revealed a neoplastic ulceration on the anterior esophageal wall with almost complete obliteration of the esophageal lumen. The left vocal cord was paralyzed and the trachea was angulated and pushed to the right so that a partial tracheal obstruction was present. Histologically, the esophageal tumor was a scirrhus carcinoma of thyrogenic origin. As a palliative measure, a large portion of the left lobe was resected, thus diminishing the tracheal and esophageal obstruction. Two courses of x-ray therapy were given over the cervical area, but the post-irradiation reaction and edema merely hastened the exodus of the patient, as she died on the 17th postoperative day.

(b) Adenoma carcinoma not arising in an adenoma. Occasionally one encounters a peculiar lesion which may be termed an "adenocarcinoma not arising in an adenoma." It does not arise from an adenoma but seems to grow from the non-tumorous portion of the thyroid. It usually remains localized, is not encapsulated, presents no mitotic figures, recurs locally if not completely removed, and is never recognized clinically. Seventeen cases were studied in this series, of which sixteen are still living and well. In one instance a local recurrence developed fourteen years after removal of the primary tumor.

Case 4. Mrs. E. H., 52 years of age, has had a goitre since childhood. One month ago she contracted a "bronchitis" which she felt was aggravated by "her thyroid gland." The right lobe of the thyroid was about three times normal size, smooth, soft and cystic. The basal metabolic determination was plus 6%. The preoperative diagnosis of a cystic colloid adenoma was made. A right lobectomy was done and the gross appearance of the tissue did not suggest malignant changes. Microscopically there was a small, non-encapsulated tumor in the upper part of the right lobe. It consisted of glandulo-papilliferous tissue that was locally invasive. Apparently all the neoplastic tissue was removed. However, fourteen years later the right lobe began to grow once more and while she refused operative interference it was felt that this represented either a local recurrence, or some of the remnant thyroid tissue had spontaneously developed another primary malignancy.

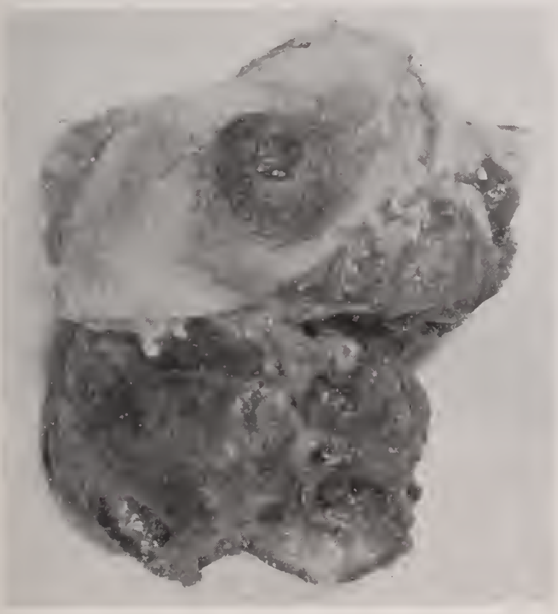
These tumors are easily handled and give excellent clinical results.

(c) Papillary carcinoma. Adenomas of the thyroid, like adenomas in other organs, may also undergo cystic degeneration and in turn these cysts may become malignant. When this occurs, multiple finger-like processes are found in the walls of the acini in an arrangement which is characteristic of papillary carcinoma. The growth is at first encapsulated; soon the papilliferous tissue invades and breaks through the thin stroma at the base of the acini in which it develops and thus extends to the adjacent lymphatics. These cystic neoplasms must not be confused with the solid adenoma that have undergone papilliferous changes. The former never invade the blood vessels while the latter always do.

Clinically, the papillary carcinoma are usually unilateral, rather firm, nodular tumors which grow slowly but may become very large. Because of its limited blood supply it tends to degenerate and form an ulcer. If completely removed, the prognosis is good. If the regional glands are involved, then recurrence is common. If the neoplastic tissue cannot be completely excised, then interstitial irradiation is helpful. Recurrent nodules should be excised as soon as they are discovered and then additional x-ray therapy administered.

Papillary carcinoma was found in nineteen cases, of which ten are still living, the average time since operation being 7.2 years. Complete cures are not infrequent, for in this series, there are three patients living, fifteen, fourteen and nine years after removal of a definite papillary carcinoma.

Case 5. Mrs. I. P., 39 years of age, complained of a dry cough for the past year. Recently she had been unable to speak above a whisper. Three months ago she consulted a laryngolist who reported an idiopathic abductor paralysis of the left vocal cord. Careful examination failed to show any abnormalities of the thyroid gland. However, ten weeks later she noticed that a "small, firm lump" appeared on the right side of the neck. The right lobe contained a walnut-size tumor, which was semifluctuant, movable and not tender. While the physical characteristics of the tumor did not arouse any suspicions, the spontaneous paralysis of the vocal cord strongly suggested a thyrogenic malignancy with infiltration pressure on the recurrent laryngeal nerve. Operation revealed an infiltrating papillary carcinoma of the right lobe. Microscopic examination confirmed this diagnosis. During her convalescence she received irradiation therapy.



1. A papillary carcinoma of the thyroid showing infiltration and ulceration of the skin. Partial resection of the gland, supplemented by x-ray treatments succeeded in preventing a recurrent growth for 3½ years.

Sixteen months later she returned because of a recurrence in the right cervical glands and in the superior pole of the left lobe. She was strongly advised to have these removed but she refused. Failing to secure her cooperation in this problem, she was then given two intensive courses of deep x-ray therapy during the next three months. Seven years following her thyroidectomy she sought relief from dysphagia due to esophageal obstruction. Esophagoscopy revealed a large ulcerating tumor on the posterior esophageal wall. Microscopically this tumor was identical to original thyrogenic neoplasm. As removal was out of the question, gold radon seeds were implanted in and about the tumor. During the next six months she received four courses of x-ray treatment to the neck and mediastinal structures. She is still living seven and a half years following primary thyroidectomy and six years following the first lymphatic metastasis. Such results are adequate compensation for energetic treatment.

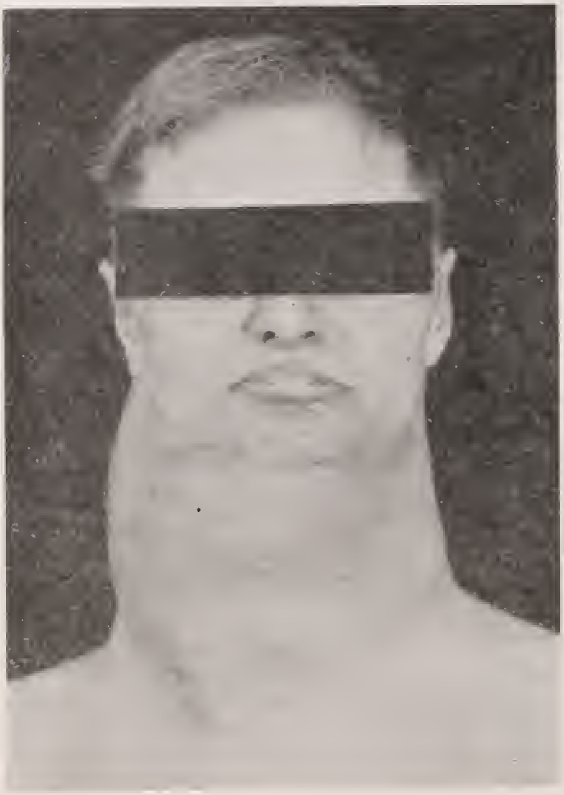
(d) Malignant adenoma. The term "malignant adenoma" was suggested by Graham to designate those carcinomas which originate in a pre-existing adenoma, exclusive of the papillary cystic adenomas just described. Fully 90% of all thyrogenic malignancies belong to this group. The morphological varieties of the malignant adenoma are numerous. The malignant degeneration may occur in fetal, and in an intermediate, or in a mixed colloid adenomata, and give rise to an adenocarcinoma, a medullary carcinoma, a scirrhus carcinoma, or a papillary carcinoma. As the tumor develops in a pre-existing adenoma, it is always encapsulated in its early stages. In fact the carcinomatous cells may invade a blood vessel and send neoplastic emboli to the lungs and bones, causing the death of the patient, without ever having penetrated the capsule of the parent adenoma. Because the capsule of the adenoma was intact many pathologists fail to recognize this form of malignancy, and have called them "benign metastasizing goitres."

Is not the local invasion of the blood vessels by the neoplastic thyroid cells, the presence of distant metastases, and the death of the patient sufficient evidence to brand these tumors as malignant? There is no such entity as a "benign metastasizing goitre."

Malignant adenomas are usually found in patients past middle life, who have had a goitre for a number of years. The sudden and rapid growth of an old adenoma, combined with a spontaneous paralysis of a vocal cord should always suggest the possibility of malignancy. Only 45% of our cases were recognized pre-operatively.

Fortunately most malignant adenomas are sensitive to irradiation, not only because the neoplastic cells in the tumor and those in the vessels are radio-sensitive, but because the resultant glandular fibrosis partially obliterates the vascular bed and minimizes hematogenous metastases.

Experience dictates that combination of surgical intervention combined with x-ray therapy is much more efficient than either of these therapeutic agents alone. Even in advanced cases when the carcinoma has already invaded the cervical nodes or the trachea, it is wise to remove the major bulk of the neoplastic tissue as it facilitates x-ray therapy. The constant, agonizing pressure on the trachea, esophagus and great vessels of the neck can be partially relieved by making a permanent transverse division of the pretracheal muscles before submitting the patient to irradiation.

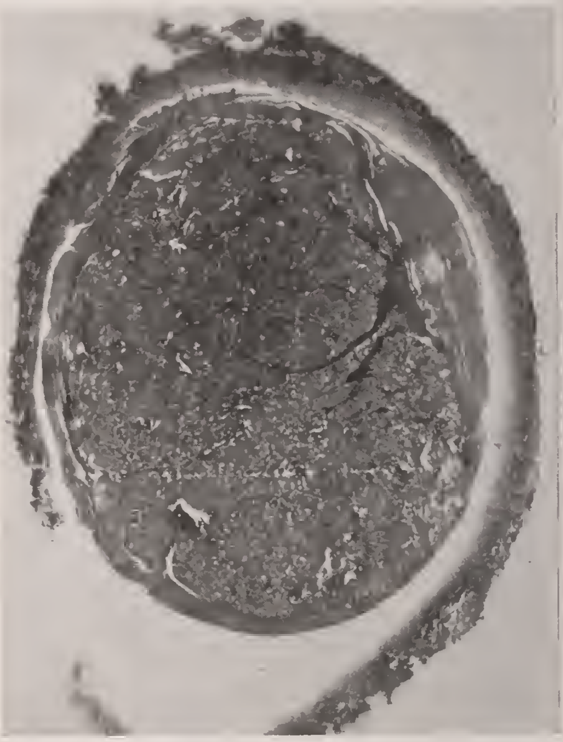


2. Three weeks ago he noticed a slight enlargement of his neck. Since then this rapidly growing malignant adenoma has invaded both lobes of the thyroid, the regional lymphatics and blood vessels. In spite of surgical and irradiation therapy he died two months later from multiple thyroid metastases. Very rapidly growing malignancies always have an unfavorable prognosis.

Recurrent lesions should always be excised and the local area irradiated. An experience with eighty-five cases of malignant adenoma teaches that comprehensive surgery, combined with intensive roentgen therapy offers the patient several years of comfort and happiness. 32% of these patients are still living, the longest eighteen years and the average six and three-fourths years following their initial treatment.

The following case is presented to show what can be accomplished by persistent therapy and co-operation:

Case 6. Mr. A. R., age 46, had his thyroid removed elsewhere seven and a half years ago. He was told the gland was merely adenomatous. One and a half years later he noticed a small nodule above the right clavicle. It had grown rather slowly for the past year. The recurrent thyroid nodule was excised and histologically was found to be a malignant adenoma. During the next nine years he received a series of intensive x-ray treatments to the neck and mediastium and on six occasions recurrent malignant nodules were removed from the neck. The neoplastic mass finally infiltrated the trachea, producing obstruction which necessitated a permanent tracheotomy. It is now two years since the tracheotomy and he is successfully directing several large commercial enterprises. It is eighteen years since his first thyroidectomy and this seems to be an ample reward for such a long therapeutic regime.



3. This represents a cross section of a vein showing complete obliteration of the vessel lumen by a neoplastic thrombus. (Malignant adenoma thyroid, Fig. 2.).

## METASTASES FROM THYROID NEOPLASMS

The therapeutic problem is complicated by the tendency of malignant thyroid tumors to metastasize to other organs. In a clinical and pathological study of 264 cases of malignant goitres at Cleveland Clinic, secondary lesions were found in 46% of the patients (124 cases).* Table I shows the location of metastatic lesions in various parts of the body.

TABLE I

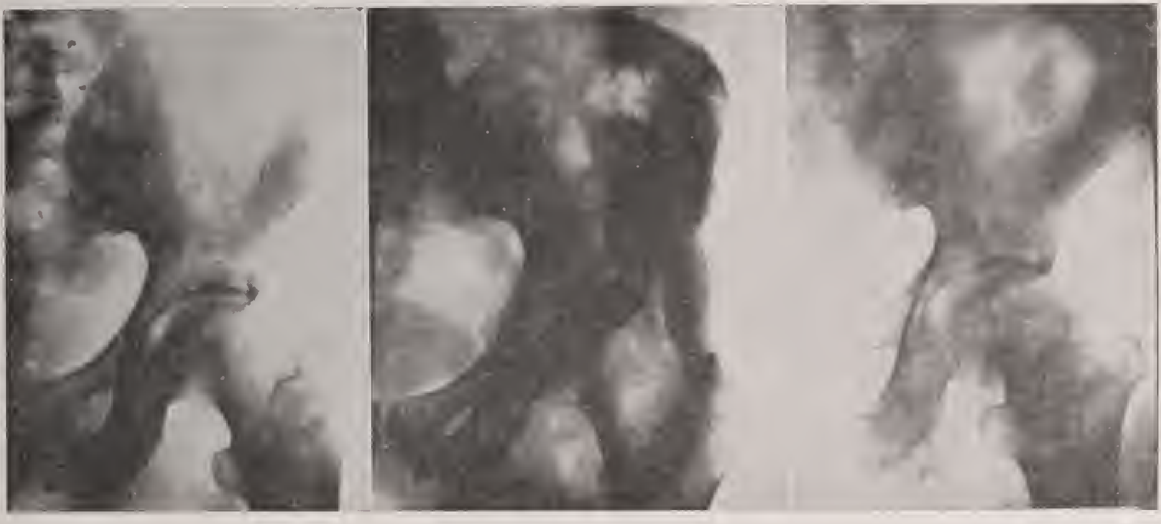
Situation of Metastases in 124 Cases Thyroid Malignancy

| | |
|---|---|
| Lungs | 36 |
| Bones | 18 |
| Cervical Nodes | 94 |
| Axillary Nodes | 3 |
| Brain | 5 |
| Liver | 2 |
| Soft Tissue | 2 |
| Intra-abdominal | 1 |

The presence of single or even multiple thyrogenic metastases does not contraindicate active surgical and irradiation therapy. Secondary lesions involving the skin, lymph nodes and occasionally single bones, can often be completely removed. Surgery combined with interstitial and roentgen irradiation will retard the development of both the primary and secondary lesions, thus extending both comfort and longevity to these unfortunate individuals. Such experience as the following indicates the value of energetic treatment in these supposedly hopeless subjects.

Case 7. Mrs. E. K., housewife, 63 years of age, had had a goitre for 37 years. It had caused no trouble until one year ago, when it suddenly began to grow rapidly, more than doubling its size in the past two weeks. The right lobe was about the size of an orange, hard, and firmly attached to adjacent structures. The left lobe and isthmus were composed of similar tissue. The cervical nodes were enlarged but not tender. It was felt advisable to remove as much of the malignant thyroid as possible and to excise the accessible metastatic lymph nodes and then to employ x-ray therapy.

Exploration revealed that the tumor had already invaded the cervical lymph nodes and the trachea. The major portion of the thyroid was resected and eight lymph nodes removed. Microscopically the carcinoma had not only broken through the thyroid capsule and invaded the lymph nodes, but many small vessels contained neoplastic emboli. Such cases usually develop distant metastatic lesions. She was given eight x-ray treatments to the cervical and mediastinal areas. Four years later she returned because of pulsating tumors involving the manubrium, right ileum and femur. Roentgenograms revealed destructive bone tumors undoubtedly of thyrogenic origin. The primary and metastatic lesions were subjected to intensive radiotherapy over a period of several years. The interesting fact is that she did not die until eight years after the incomplete removal of the malignant goitre and cervical nodes, and four years after the occurrence of osseus metastases. This substantiates the efficacy of persistent energetic treatment of thyroid neoplasm.



4. Progress studies of metastatic thyrogenic malignancies developing in the ileum and femur. X-ray treatments prevented the rapid growth of the tumor. Patient was able to walk about for 3½ years, then died from multiple pulmonary metastases.

SUMMARY

1. A clinical and pathological study was made of 264 cases of thyroid malignancies in an effort to determine the efficacy of surgical and irradiation therapy.

2. The radio-sensitive tumors are the lymphosarcomas, the malignant adenomas, and the papillary adenocarcinomas. Those which do not respond to either the interstitial or roentgenotherapy are the spindle cell sarcomas, the carcinomasarcomas, and the scirrhus carcinomas.

3. Biopsies should be made of every suspected malignant goitre, for the amount of irradiation given depends on the type of neoplasm encountered.

4. Complete removal of the neoplasm is always to be desired. If this is impossible, then partial excision of the major portion of the infiltrating tumor, cervical decompressions, tracheotomies, and biopsies are valuable surgical adjuncts.

5. A combination of surgery and x-ray therapy is more effective than either agent alone.

6. Recurrent malignant lesions should always be excised and the local areas submitted to intensive irradiation.

7. Case histories are presented to show the beneficent effects of energetic treatments. Metastatic lesions offer no contraindications to active surgical and roentgen therapy.

8. The "malignant adenoma" comprises 90% of all thyrogenic malignancies and makes an excellent response to surgical and x-ray treatments.

9. Pessimism and apathy have no place in the treatment of malignant goitres.

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# STRUMA LYMPHOMATOSA (HASHIMOTO)

## WITH REPORT OF THE NINTH CASE,

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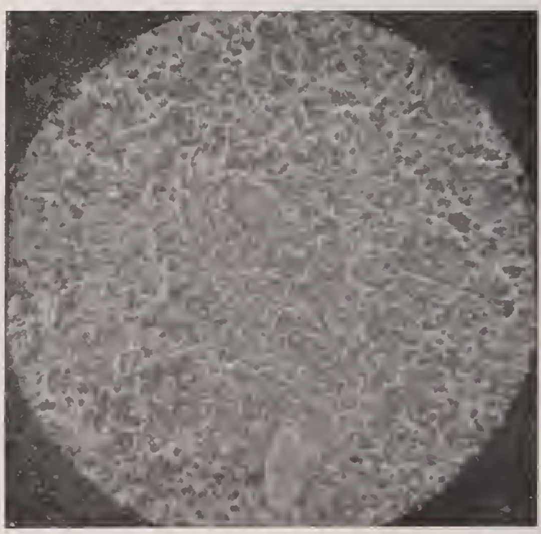
In 1912 Hashimoto reported four cases of goiter with peculiar histologic and clinical findings which he designated Struma Lymphomatosa. In 1931 Graham and McCullagh reported four additional cases. They were unable to find in the literature any others, but were of the opinion that "subsequent observers either have failed to recognize or report this particular type of lesion or have arrived at a different interpretation." They refer to the opinion held by some "recent writers" that the struma described by Hashimoto is not a clinical entity, but an early stage of Riedel's struma. After tabulation of the eight cases they present an instructive comment on the clinical picture and histo-pathology and advance a number of reasons for questioning the classification of struma lymphomatosa as a stage in the development of Riedel's goiter. Graham in a subsequent article in 1931 contrasts in greater detail the clinical pictures of the two lesions. He is of the opinion "that Riedel's struma is not necessarily preceded by struma lymphomatosa, that struma lymphomatosa does not necessarily progress to Diedel's struma; and that it is highly improbable that there is any necessary relation between these two conditions."

The most distinguishing characteristic of struma lymphomatosa is the microscopical picture. The eight reported cases had the following histology:

1. Well marked atrophy and degeneration of the epithelium.
2. Marked diminution of the colloid material.
3. Replacement fibrosis.
4. Extensive diffuse lymphoid infiltration and localized areas of lymphoid tissue with hyperplastic germinal centers.
5. Fibrous thickening of the capsule.
6. Marked increase of the inter- and intralobular connective tissue.
7. There was no acute inflammation, abscess formation tubercles, caseation or gumma and no neoplasm.

Up to and including the present case, only one, number four of the Graham and McCullagh series, was diagnosed preoperatively. None have been reported as autopsy findings. Therefore, almost without exception, these cases have been brought to attention by finding in the pathological laboratory a type of histo-pathology strikingly dissimilar in appearance from the usual microscopic findings in goiters. In struma lymphomatosa nearly all acini and epithelium have disappeared so that at first glance one might suspect that the tissue was not thyroid at all and the lymphoid tissue is abundant, and with hyperplastic germinal centers so that one may easily believe the section to be one of a lymph gland.


Almost complete conversion to lymphoid tissue. A few remnants of acini and epithelium. One giant cell.

After a study of the eight cases reported as struma lymphomatosa and of eighteen additional cases which they believe are recognizable as this condition, but which have been described under some other terminology, Graham and McCullagh formulated clinical data which seems to be fairly constant, although they state that no single clinical or pathologic feature is characteristic or pathognomonic.

The following peculiarities are sufficiently striking to suggest that they represent, so far as our present knowledge reveals. the clinical picture of struma lymphomatosa.

1. Age and sex: All were in women of forty or over.

2. Cases are equally divided between goitrigenic and non-goitrigenic district.
3. There was no family history of goiter in any case.
4. Five were obese, two moderately well nourished, one "large".
5. There was neither gain nor notable loss of weight.
6. Focal infection was not a prominent factor.
7. Symptoms: The symptoms recorded by Graham in the 8 previous cases may be tabulated as follows:
    a. Exophthalmos was not present in any case.
    b. Headache—in 3.
    c. Vertigo—in 1.
    d. Palpitation—in 1.
    e. Tenderness and fever—in 1.
    f. Sense of constriction in shoulders—in 1.
    g. Hoarseness—in 1.
    h. Dysphonia—in 2.
    i. Respiratory stridor—in 1.
    j. Dyspnea—in 2.
    k. Choking sensation—in 1.
    l. Hypothyroidism was not recognized in any case before operation but was probably present in at least 1 case.
    m. Cardiovascular symptoms were not prominent.
    n. Malignancy suspected (hard gland)—in 5.
    o. Onset and course are unknown except one of Graham's cases progressed one year.

Symptoms other than goiter have not been pronounced. In a personal communication Allen Graham said, "From a clinical standpoint this type of goiter usually appears in a woman more than forty years of age, with no evidence of hyperthyroidism and little or no evidence of myxedema. The symptoms are those of mild obstruction, sense of pressure in the neck, fatigue, decreased endurance, status not up to par, and is usually associated with a rather uniform, bilateral enlargement of the thyroid, which is not adherent to surrounding tissues, but is closely attached to the trachea and is frequently considered malignant, clinically, chiefly on account of its hardness and is confused with Riedel's disease."

Graham believes that out of 104 cases that have been described in the literature as cases of Riedel's struma or ligneous thyroiditis, woody thyroiditis, etc., 24 were probably struma lymphomatosa.

Case 9—Mrs. M. S., white, age 48, manager of a rooming house.

History: Born and lived in Nebraska exclusively. Always well until eight years ago. No goiter noticed until age 41. Always worked hard at indoor work. Had no attacks of tonsillitis, teeth are now exceptionally good and no history of dental infection, sinusitis, or frequent colds. At age 37 bilateral salpingectomy and partial oophorectomy was done for inflammatory disease.

Onset: Seven years ago first noticed fatigue, and a pressure discomfort over the trachea. Gradual increase of fatigue, languid, apathetic, no ambition, could not get her work done. Six years before onset her weight had increased from 130 to 169. No change in weight after onset until the past summer, seven years after the onset, when she lost 20 pounds. Symptoms were all markedly exaggerated the past four months. Exhaustion so extreme that she was bedfast most of the time. Felt fairly well in bed, but as though she "just couldn't get up." A profound physical exhaustion was the most outstanding symptom. She attributed the nervousness to an inability to do the things that she wanted to do. She did not have the tense agitation of hyperthyroidism. Friends had noticed that her eyes were dull and lusterless, but not prominent. Her appetite was poor and things did not taste good. Next to exhaustion, the prominent complaint was distress in the left side, in the regions of the heart. This was a dull ache. At the time when she thinks the trouble began, that is seven years ago, and continuously to, and including the present, she had great worry and mental distress due to family and business affairs. No other in her family had a goiter.

Examination: Examination revealed a well nourished, pale, listless and apathetic woman. Dull expression to the eyes. No exophthalmos or tremor. No tonsillitis, dental infection or sinusitis. There was fullness of the neck anteriorly. The thyroid gland could not be palpated distinctly, but it was considered to be enlarged. It was not unusually hard. The red-cells were 3,200,000, white-cells 6,500, Hg. 60, Wassermann negative. The urine was negative. The metabolic rate,-20. The lungs were normal. The heart size index 1.95, no murmurs, and E.C.G. normal. There was a scar of a subumbilical laparotomy. Extremities normal.

The clinical diagnosis was non-toxic diffuse goiter with slight hypothyroidism.

Treatment and operation: After administration of thyroid extract Gr. 2 t.i.d. for ten days the M.B.R. was plus 12. She felt less weak and exhausted and less nervous. She was distinctly improved symptomatically. At operation Oct. 6, 1933, the gland was smaller than expected, little if any larger than normal. It was not adherent to surrounding structures, but closely attached to the trachea. It was not of woody hardness, but was firm and brittle, breaking off easily in the hemostats. The color was pale and it was not very vascular.

Pathological report: The tissue consisted of the right and the left lobes of the thyroid gland, the former measuring 5 by 2 by 2 cm., the latter 4 by 2 by 1½ cm. It was white and firm with contour like the normal gland. The capsule was thickened. Increased fibrous tissue was noted on section. It was finely and coarsely trabeculated.

Microscopically the tissue resembled a lymph gland more than a thyroid. On close examination the epithelium with suggestion of acinar arrangement could be discerned in places, but for the most part it was atrophic and replaced by connective tissue infiltration. The lymphocytes were both intra and interlobular, with numerous localized collections and germinal centers. Multinucleated giant cells of the foreign body type were present in the midst of atrophic thyroid epithelium. Pale staining vacuolated cells and syncitia-like masses marked the remains of epithelial degeneration. These sections were in every particular exactly like those illustrated by Graham and McCullagh as the typical histological picture in their cases of Struma Lymphomatosa.

Postoperative course: The convalescense was uncomplicated. The postoperative course was easier than usual after toxic thyroids. The following notations were made on December 19, 1933, one month after the operation: She says she feels much better, not nearly so tired and exhausted, and that her appetite and taste for food is good. She has gained weight. Her color is normal and she has a more alert appearance. The red-cells were 4,200,000. The B.M.R. -17. She had not been given thyroid extract since the operation.

### COMMENT

This case corresponds clinically and histo-pathologically to the four reported by Hashimoto in 1912 and to the four reported in 1931 by Graham and McCullagh as struma lymphomatosa. This is the first case in which metabolic rate had been taken before operation. Minus 20 was found tending to substantiate the suggestions of Graham and McCullagh that hypothyroidism may be associated. It occurred postoperatively in 58 per cent of the Hashimoto group and clinical evidences of it were present preoperatively in one of the Graham and McCullagh group. This goiter was only slightly larger than a normal gland while the previously recorded cases have been considerably larger. This case as all others so far reported, occurred in a woman past forty years of age. Symptoms and goiter had existed seven years, longer than the average in the other cases. There is no evidence of a pre-existing goiter nor of a period of illness suggestive of hyperthyroidism. The gland in this case was not hard or otherwise suggestive of malignancy either before or at the time of operation. The entire thyroid was involved in the changed histology. The process was limited to the thyroid gland. The gland was fairly tightly attached to the trachea, but it did not attract attention at the time of the operation as being definitely adherent to the trachea. There were no cysts, adenomata, areas of calcification, inflammation or abscesses. There was hypothyroidism of slight degree both before and after the operation. This patient did not live in a goitrigenous district. She had symptoms for six and one-half years with stationary weight, but had lost 20 pounds in the last three months before operation.

More or less lymphocytic infiltration of the thyroid takes place in the goiters of exophthalmic goiter. Sometimes this infiltration is quite extensive. Also according to Hellwig the infiltration in Graves disease is more frequent in women past 40. This observation might tend to cast doubt on the entity of Struma Lymphomatosa and suggest that on the contrary this lesion may occur under certain conditions as yet unknown as a terminal state in a mild toxic goiter.

I have answered in this report the data suggested by Graham "for the purpose of orienting ourselves in regard to this problem." It would be helpful to this end, if all cases in which the histologic picture is one of extreme lymphocytic infiltration to compare the data concerning "age, sex, the previous existence of goiter; duration of symptoms, duration of the goiter, the extent as well as the character of the involvement of the thyroid; limitation of the process to the thyroid or extension beyond it (including more than the mere statement that the gland was adherent); adhesions to the trachea as opposed to adhersions to the surrounding structures; the presence in the thyroid of adenomata, cysts, areas of calcification, frank inflammation, including small or large abscesses, the presence or absence of hyperthyroidism, and hypothyroidism before or after operation; the amount of tissue removed; the character of the tissue remaining; the gross characteristics of the lesion, and finally the microscopical findings," with the clinical and pathological pictures that have been described under the term of Hashimoto's Struma.

### SUMMARY

I. A case is reported and corresponds clinically and histologically to eight previously reported as struma lymphomatosa.

II. The suggestion is made that this lesion may be related to long continued mild toxic goiter.

III. In this case there was no resemblance to Riedel's disease.

I am indebted to Allen Graham for the interpretation of the histology and other valuable suggestions.

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# PROGRESS OF SURGERY

A Review of the Literature for the Last Six Months of 1934

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### BONES AND JOINTS

The use of autogenous bone grafts, whether in the form of the massive graft, splint graft, osteoperiosteal graft or simply bone chips, has become well established. Numerous studies have been carried out with relation to calcium and phosphorous metabolism in an effort to stimulate bone growth. Circulatory alterations have been studied for the same purpose. Stewart(1), experimenting upon dogs, put a mixture of lime salts into bone defects to test whether this might not be an improved method of supplying available calcium resulting in supersaturation of connective tissue. The results were disappointing.

Haldeman and Moore(2) experimenting at the

University of California Medical School, also found that an excess of calcium and phosphorus at the site of fracture did not influence or retard the rate of union in normal healing. In cases of delayed healing they thought it favored union.

### THORACIC SURGERY

In recent years there have been great advances in the treatment of bronchiectasis and tumors of the bronchi and lungs by lobectomy and pneumonectomy. The technique of these operations has been so improved that the mortality is no longer prohibitive. Heuer(3) considers the one-stage operation is now becoming the one of choice in cases of tumor. However, in bronchiectasis, the multiple stage lobectomy has been most frequently used. There is now a trend, even in bronchiectasis, toward the one-stage operation. One of the most important problems, i.e., the aseptic division and secure closure of the bronchial stump, has been neglected in the past and is an important problem for the future.

### GYNECOLOGY

Counseller and Craig(4) reported that the results obtained from resection of the superior hypogastric plexus indicated to them that the primary etiologic factor in dysmenorrhea is dysfunction of the pelvic sympathetic nervous system. The benefits following the operation were permanent, while normal menstruation and childbirth were not disturbed. If menstruation had been abnormal in amount and duration, there was a marked tendency for it to become normal. Any other pathologic condition should be corrected at the same time. In their series they reported almost complete relief following sympathetic resection in all cases, whether there was any associated pathology which was corrected at the same time, or whether no organic trouble could be found.

### UROLOGY

J. S. Joly(5) of London gave a very excellent discussion upon etiology of urinary calculus formation before the American Urological Association. He considered it to be a deficiency disease. He stated that normal urine is always a supersaturated solution, but only supersaturated with regard to the stone forming salts. All its other constituents are in a state of simple chemical solution. The stone forming salts are held in solution by the action of the colloids which act by absorption. This means that large numbers of the molecules of these relatively insoluble substances are attracted to the surface of the colloid particle where they adhere. The urinary colloids are normally in such a fine state of subdivision that their total surface area is enormous. The colloid particles tend to coalesce, thus reducing the surface area. This explains why crystals tend to form in urine that has been allowed to stand for some time.

If the colloid becomes precipitated in the urinary passages, a mass of crystals will also be deposited in them.

He feels that the formation of primary calculi is the natural physical consequence of a derangement in the colloid mechanism by which the stone-forming salts are normally kept in a solution in the urine. The exact nature of the derangement is at present unknown. It may be an alteration in the quantity, in the degree of subdivision, or in the nature of the colloid. The urinary colloids are probably derived from the renal epithelium. Therefore, very probably changes in the renal cells should influence them in some way. A deficiency of vitamin A gives rise to changes in the epithelium of the urinary passages, the most common being keratinization. Cystitis, pyelitis, and urinary infections generally are very common sequelae of a deficient diet. It is possible that this lack of resistance to infection may be due to some change, as yet undetermined, in the epithelium of the urinary tract. Although there is no proof, Joly presumed that there may be a similar change in the renal epithelium. Then, he stated, one could say a deficiency in vitamin A affects the renal epithelium which, in turn, deranges the colloid mechanism of the urine, and that stone formation follows as a natural consequence of this derangement.

Hyperparathyroidism as a cause of urinary calculus formation has been discussed by Barney and Mintz(6). This is based upon the frequency of nephrolithiasis in this disease. In a group of 18 cases of hyperparathyroidism they studied, 11, or 61.1 per cent, had urinary calculi. Hunter found stone in 10, or 31.2 per cent, of his cases of hyperparathyroidism. Sixty-five cases of parathyroid diseases have been reported by 36 other authors. Stones were present in 15, or 23.07 per cent, these being bilateral in 10 cases or 66 per cent.

Barney and Mintz then studied 33 of their cases of urinary calculi at random. Of this number 11, or 33 1/3 per cent had a high blood calcium.

The authors theorized that some disturbance of metabolism plus a factor or factors existing at least temporarily in one or both kidneys, is at work. They thought a study of the colloids, also of dietary and vitamin deficiencies might aid.

They felt that hyperparathyrodism account for at least a part of the problem.

### ENDOCRINE SURGERY

The "impedance angle," an electrical property of the body, has recently been studied and measured by Brazier. She found that there was much deviation from normal in thyrotoxicosis. She showed that the I. A. could be altered by giving the patient thyroid extract or thyroxine. She concluded that the I. A. "forms a very reliable aid to the diagnosis of toxic conditions of the thyroid gland. In this respect it is more specific and more certain than the basal metabolic rate."

Robertson and Wilson(7) have studied this upon eight cases of hyperthyroidism. In all of them the I. A. was found to be altered as previously found by Brazier. In none of these cases did preoperative iodine medication alter the impedance angle, although this treatment produced in all of them clinical improvement, fall in pulse rate and fall in basal metabolic rate. In four of the cases studied again nine to fourteen days after subtotal thyroidectomy, no alteration was found in the I. A., although the operation was followed by a fall of the B. M. R. and pulse rate and by clinical improvement.

In two cases of well marked myxoedema the I. A. was found to be normal. Treatment with thyroid extract produced no alteration in the I. A.

They concluded that "determination of the impedance angle is of no value in assessing the clinical progress of Graves' disease or myxoedema.

Lahey, reporting at the recent meeting of the Western Surgical Association, was also rather disappointed in the results of this new test in thyroid disease. He found it rather accurate in well marked cases of thyrotoxicosis, but in these the ordinary methods of examination make the diagnosis quite certain. In the borderline cases, however, where there is need for better methods, he found the determination of the impedance angle less accurate than the basal metabolic rate.

### TUMORS

None of the reports on sarcoma of the breast, at least in this county, have really classified these tumors well. Because of this, the terms employed have been very indefinite. A very careful study of 60 cases of this disease has recently been made by Fox(8) at Johns Hopkins. He has analyzed and classified them upon a histological and anatomical basis into four groups: (1) fibrosarcoma; (2) neurogenic sarcoma; (3) lymphoid and myeloid sarcoma; (4) a non-indigenous group. Type 1, (fibrosarcoma) has been subdivided into the fascial type and that secondary to fibro-adenoma.

He thought that the best prognosis is in the group 1 and that sarcoma secondary to fibroadenoma or intracanalicular fibromyxoma offers an excellent chance for cure if properly treated. The treatment of sarcoma is surgical, and mastectomy with excision of both pectoral muscles and fascia was recommended. Axillary metastasis rarely occurs in mammary sarcoma and probably never early in the disease.

Glomus tumor was first recognized and described by Barre and Masson of France in 1924. Its striking symptom is pain, which with the least pressure becomes excruciating. Adair(9) has recently reported 10 such cases seen at the Memorial hospital in New York. The tumor occurs beneath the finger nail or on the hands, arms or legs. It is from 4 to 10 mm. in diameter, is dark rose color, is smooth, rounded and elevated unless held down by a finger nail. It looks somewhat like a small hemangioma, but it is a solid tumor. It is also a solitary tumor, usually occurring in the older periods of life.

Microscopically the lesion appears to be irregular, tortuous, cavernous blood vessels except that the walls are peculiar. The lining endothelial cells are cuboidal and rest on a thin collagenous membrane. Some of the vessels are surrounded by a layer of circular muscle, passing gradually into a zone of "epithelioid" cells. These cells are derived from the muscle. They are globular and their nuclei are spheroidal.

As the tumor is benign surgical excision gives excellent and permanent results. X-ray and radium therapy seems to be ineffectual.

Gandolfo(10), in a study of 11,000 cases of cancer, found the Roffo test to be a valuable auxiliary method in the diagnosis of cancer, even though it is not specific. Though a negative Roffo test did not exclude the presence of a tumor, a positive result should lead to continued study of the case for tumor, as the proportion of erroneous positive results of the test were only 6.37 per cent in 6,718 tests undertaken. It gave its best results in internal cancer which is hardest to discover by ordinary methods.

The technique of the test is very simple. To 1 cc. of fresh, clear serum 5 drops of 1 per cent neutral red in distilled water are added. If the serum assumes a red color the reaction is regarded as positive. A yellowish hue indicates a negative reaction. The serum is not to be obtained by centrifugation. The blood must coagulate and the limpid serum be extracted by means of a suction pipe, the slightest trace of hemolysis altering the results. The blood must be extracted before breakfast in order to avoid the influence of nutritive lipoids. Neutral glass tubes must be used, as alkalinity influences the results.

### ANAESTHESIA

Recently a very interesting report upon cyclopropane as a new anaesthetic agent has been made by Waters and Schmidt(11) from the University of Wisconsin. An important advantage of this gas is the low concentration necessary to produce narcosis. Occasionally this concentration may be as low as four per cent. The average concentration used for abdominal operations is 13.1 per cent. Because of this, it is very easy to give enough oxygen and so the color of the patient remains good. Also, for the same reason, respiration can be very slight, which makes the work of the surgeon easier. Induction is pleasant, ringing in the ears, fullness in the head, etc., are less frequent because of the avoidance of oxygen want. This gas will produce deep anesthesia with good mucular relaxation without respiratory irritation. Because of this, however, the anaesthetist has lost a guide as to increased concentration and so must be careful not to push the anaesthesia too rapidly. The authors choose it in preference to ether in well over 75 per cent of their work.

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## DIAGNOSTIC THERAPEUTICS IN GASTRO-INTESTINAL CONDITIONS*

FRANCIS W. HEAGEY, M. D., F. A. C. P.,

The diagnosis of gastro-intestinal disorders is grossly inadequate and frequently inaccurate—so inadequate and inaccurate that it merits much more attention than it now receives. If many members of the medical profession will not admit this inadequacy, it is because they sincerely believe the advances in mechanical demonstration of pathology have eliminated most of the guesswork.

It is true, we have traveled a great distance since the pre-laboratory day, yet there is serious question in my mind as to whether all this has been progress. Before the intensive development of chemistry and the x-ray, the doctor was compelled to rely wholly upon the observed result of treatment to clear up any doubts left after the history had been taken and manual examination made. The diagnostician has an excellent chance to compare methods, for he sees a higher percentage of difficult cases than do those doctors in what may be called the first line of consultation. A patient who presents a typical and complete set of symptoms, or localized pain, either of which points indubitably to correct diagnosis, can be treated satisfactorily at once, however grave the nature of his disease. Such a patient is usually appreciative and grateful, and remains the doctor's warm friend long after his illness has been forgotten.

We meet with other cases in which symptoms cannot be so easily explained. It frequently happens that a common disorder is manifested by atypical symptoms; also, we see a certain number of patients who have rare diseases, or those which cause only vague symptoms. Such a patient is likely to be a thorn in any doctor's flesh. Happily, in the general practitioner's office, he is an exception; in the diagnostition's office, however, he is the rule.

His failure to receive such benefits as those typical cases receive is certain to make him impatient. He changes doctors, perhaps several times. He accuses his doctor of a mistake in diagnosis, or of not knowing what is the matter with him, quite as cantankerously as if those charges were of criminal shortcomings. He begins to believe something important has been overlooked, and about that time he bobs up in the office of the internist, determined that all the marvels of mechanical diagnosis shall be applied to his case.

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There is some justification for this attitude. Some of our laboratories are truly wonderful places. Much of the appartatus is of such complicated design, so finely adjusted, so precise in its registration, so completely independent of the misleading temperamental vagaries of the patient, that one almost expects to find a physicist, rather than a physician, in charge of the work. Yet, for all that, it is one of the ironies of medical practice that the laboratory is most dependable when the symptoms are pronounced, and the disease may be easily demonstrated without mechanical tests.

It is more than an irony, it is a pity; for the patient who feels most desperately the need for a definite positive or negative report, is, unfortunately, the one whose trouble is not so pronounced as to be readily discernible in mechanical reports or physical examination, or recognizable by a typical syndrome. He may be driven to distraction by annoying symptoms that seem to have no explanation; and besides demanding mechanical tests, he may be willing to sacrifice his teeth, tonsils and adenoids to a program of eliminative diagnostic surgery. Therefore, the most important service the diagnostician can render is to act as a balance wheel, a check upon enthusiasm for procedures that may be ill-advised. He must get the patient used to the idea that time, with its element of checking and rechecking, is the most important factor in diagnosis. He seldom expects to succeed quickly where others have failed, particularly in cases presenting gastro-intestinal symtoms. His routine examination will include as many mechanical tests as appear to be indicated; but when, after he has checked over the results, and perhaps gone into a huddle with pathologists, roentgenologists, and all the other ologists, over some vague shadow on an x-ray film, he finds his question still unanswered, he knows he must look further for the trouble. When he is satisfied that proper attention has been given to all details of history and examination, his next recourse is to diagnostic therapeutics.

I should like to mention a few examples of things that have been helpful to us after tests have failed. I am aware that when anything so impressive as the modern diagnostic laboratory has failed to throw light upon a case, the next step ought logically to be something even more complicated and mystic—that is, some procedure known only to the initiated few. But it is nothing of the kind. It is just the successive trying of one treatment after another until one is found that fits the case. I have refreshed my memory by studying the results of treatments on cases taken from my own records. They might have been taken from yours—we all have many such cases—or they might have been taken from the records of the old family doctor of several decades ago, who was traditionally opposed to "new fangled" methods. So we return to trial treatment; and lest someone accuse me of advocating a step backward—the phrase seems to be in the air these days—I want to remind you again that the procedures I mention are most valuable where tests have failed; therefore, so far as the cases to which they apply are concerned, we have never been on any more advanced ground.

I am citing typical conditions and situations, rather than cases. Any case record selected at random would probably show one or more of such treatments given without results, either in relieving the symptoms or throwing light on the cause of the trouble. I shall mention only those treatments which were followed by an amelioration of symptoms; for successful treatment is an agent of diagnosis as well as of healing.

I recall the case of a woman who had been troubled with indigestion, gas and diarrhea for a long time. She had undergone several major abdominal operations, and had been treated a number of years for gastro-intestinal upsets and abdominal pain. Small doses of dilute hydrochloric acid gave almost immediate relief, and the benefit proved to be lasting. The chief difficulty with some cases is that they are too simple. To give several typical instances: We often find that when prolapsed viscera are elevated, even to a slight degree, by a properly fitted support, the symptoms are relieved and soon disappear. A bowel may be entirely healthy otherwise, yet a spastic or anatomic disorder of the anal sphincter may bring on gastro-intestinal difficulties out of all proportion to the seeming importance of the cause. When such upsets seem to be attributable to irritable colon, we place the patient on proper doses of Kaomin or Karacin. These preparations contain Fuller's earth and give the intestinal tract a protective coating. When used with tannigen as an astringent, they will clear up the excessive mucus of a mucous colitis. We may use diet alone to establish the diagnosis of irritable colon. We place the patient on smooth diet and find that, in the absence of residue, the irritation disappears, and the symptoms disappear with it.

The patient's response to change of diet sheds light upon a wide variety of causes of gastro-intestinal symptoms. Often, when the pain in the right lower quadrant, leaving out the coarser cellulose from the diet proves to be distinctly beneficial. The cecum is the location of cellulose fermentation. Similarly, soreness on the left side of the abdomen can frequently be relieved by the omission of meat from the diet. The descending colon is usually the offender when alkaline fermentation and putrefaction take place as the result of incomplete digestion of proteins.

In cases of food allergy, I believe we have all found experimental diet to be far more valuable than skin tests. We start with the simplest of acceptable foods, usually milk, and permit the patient to add others one at a time, so that the least possible doubt can be entertained as to the ones that cause trouble. This is a thoroughly dependable method of pegging the foods to which the patient is sensitive.

We can all point to experiences which indicate that diet may be varied with good diagnostic results, whether the difficulty be allergic or otherwise. By giving only vegetables and no meat at one time, meat without vegetables at another; eliminating all eggs, milk and butter for one period, omitting all cereals for another, the doctor extracts the root of the trouble when he learns that the patient feels well when certain foods or groups of foods are not taken.

The real cause of digestive upsets is often so far removed from the gastro-intestinal tract itself that there seems to be no connection whatever between symptoms and diagnostic treatment. Adequate care of cardiac decompensation often brings about a cessation of digestive upsets. Treating a case of thyroid inadequacy with proper doses of thyroid extract is likewise effective in relieving symptoms. We have found that the clearing up of infected adenoid tissue, even in the absence of localizing symptoms, very frequently results in complete disappearance of gastro-intestinal upsets. In menopause, or other menstrual disturbances giving rise to such troubles, or hot vaginal douches, pituitary extracts, usually A. P. L. or ovarian extract, may relieve the symptoms.

Constitutional inadequacy and chronic fatigue may cause the most distressing symptoms. Relief from fatigue and readjustment of activities within the capacity of the individual may bring an end to the upsets. Other causes which are at the bottom of nervous indigestion, include temperamental imbalance, marital infelicity, work and misfit strain. These causes are hard to demonstrate and harder still to adjust. Yet change of work, relief from worry, or a new domestic understanding may supervene and bring about a cessation of symptoms.

It sometimes happens that small doses of belladonna or atropin relieve all of the symptoms before any other diagnostic measures have been carried out, and a tentative diagnosis of spasm of the intestine is justified. Also, when relief comes after small doses of luminal or a mild sedative, the symptoms seem logically attributable to nervous origin.

Nevertheless, most of us have found that so-called nervous breakdown, which so often seems to be without explanation other than overwork and worry and consequent nervous strain, can in nine cases out of ten be traced to intestinal origin. There is nearly always spasm and soreness of the colon. The viciousness of the circle has to be admitted. The more nervous the patient, the more pronounced the gastro-intestinal upsets; and certainly continued upsets make for an unstable nervous system. It is the physician's problem to swing the patient out of the circle by whatever means he can; for we have never been successful in restoring the nervous patient to health unless we have been able to restore the function of the colon to normal.

As if to balance the long list of extraneous troubles in digestive upsets, we have instances in which gastro-intestinal disturbances disguise themselves under misleading symptoms and direct attention to other parts of the body. Probably we have all had experience with the patient who complains of pain in the lower left chest, with the appearance of pleurisy or cardiac disturbance. When the pain is not relieved by strapping the chest, it is often a good plan to try so simple a thing as an enema, which may release a pocket of gas in the splenic flexure of the colon.

Failure of any procedure of diagnostic therapeutics is just as important to eliminative diagnosis as its success would be to positive diagnosis.

Once the failure of two-hour feeding and alkaline powders has thrown doubt upon an ulcer diagnosis, the gallbladder and biliary tract come under suspicion immediately. The presence of bile and urobilogen in the urine gives further weight to this tentative diagnosis. The disturbance of the liver and biliary functions is such a frequent cause of gastro-intestinal symptoms that it is worth while to trace such an upset to its origin, which is often quite remote in time. Obstinate constipation may have started the patient into a cathartic habit. He may have abused his intestinal tract with coarse foods. He may have acquired unhealthy emotional habits and a spastic colon. The result is that the mechanical function of the bowel is thrown out of balance and the toxic products of fermentation and putrefaction pass up through the portal system to the liver.

The liver is the great detoxifying organ of the body. However, the load imposed upon it by imbalanced bowels goes far beyond its capacity to handle. When this extra burden is continued for any length of time. permanent injury may be done. There is then disturbance of the hepatic function; the bile becomes thickened and infected. The result is biliary colic and the complete upset of the intestinal function, with all of its attendant distressing symptoms. Our problem here is to clear the liver and gallbladder and at the same time restore and maintain the colonic function. It becomes a matter for nicety of discrimination and finesse of treatment. The disturbance is a frequent one, but it presents such a multiplicity of symptoms that the physician may easily be misled, particularly when treatment, aimed at one phase of the complex imbalance, induces fresh symptoms in another part of the body. The treatment must be carefully watched and results evaluated every step of the way.

This evaluation of treatment, as we all know, may be a maze of pitfalls. Experience and good medical judgment are as necessary in diagnostic therapy as they are in the interpretation of mechanical findings. One of the most common of the misleading factors seems to be that the patient, whatever the treatment, tends to get well of most of his diseases. The physician does well to keep himself in hand and avoid believing what he wants to believe without exercising sufficient care in correlating the recovery with the treatment. Such care must be taken or we learn nothing from our diagnostic therapy. There are times when there is no way to check the result. A patient of mine complained of sudden attacks of chest pain and fainting. He had suffered such attacks about once in six months, for several years. During the course of the examination, he became ill and vomited peaches which he told me he had taken sixteen hours earlier. This seemed to indicate a spasm of the pylorus, and I gave him atropin and alkaline powders. His symptoms were relieved, but, in this case particularly, there is not way of telling whether he got better because of the atropin and powders, independently of them, or in spite of them; for there had always been intervals of about six months between attacks, and we must wait at least that long before we dare to form an opinion.

Self satisfaction is a dangerous thing. Think of the physician who congratulates his patient and himself on the result of treatment; only to learn that his medicine has not been taken and his advice has not been followed. Such enthusiastic jumping at conclusions may be only human, but it costs the doctor too much in the confidence of his patient and faith in himself.

There are many reasons why diagnosis of gastro-intestinal disorders is not carried out adequately. In so many cases, identical symptoms are reported for different extraneous causes; it is also true that different symptoms often occur for identical causes. Sometimes the patient complains bitterly of his symptoms; sometimes manual examination gives the physician his first hint of something wrong in the abdomen. The whole layout is so confusing that the tendency is to relieve gastro-intestinal symptoms, rather than to diagnose them correctly and treat them.

The disappearance of severe upsets is a great relief to the patient and a great satisfaction to the doctor. even though minor residual symptoms still exist. Both patient and doctor remember how much worse the condition might be and forget how much better it could be. It is the duty of the doctor to bear in mind, and see that the patient bears in mind, that compromise with gastro-intestinal trouble is all wrong. It is wrong, first, because it is seldom really necessary; and second, and most important, it does not pay.

There are many diseases with which a compromise is the best possible success in treatment. When we have made it possible for a patient with neuritis or arthritis to be fairly comfortable most of the time; when by treatment and education we have enabled the diabetic patient to take a nearly normal part in life; when we have taught the heart disease patient to order his existence so that he places the least possible strain upon a weakened cardiac muscle, we have done the best we know how to do; and the patient receives the highest benefit we know how to give him.

Gastro-intestinal troubles, however, are not, of themselves, incurable diseases. Complete relief is possible in most instances, and compromise is costly in all instances. We know of many cases in which minor illnesses, such as common colds, slight infections, and the like, have been unduly prostrating. Lack of reserve, due to the inability of the patient to build up his strength in the presence of continued so-called minor gastro-intestinal symptoms, is often the reason for this disabling effect. We have all known of many cases in which lack of the necessary reserve, due to the same cause. has been responsible for the patient's drifting from minor ailment into serious, or even incurable disease. Even though serious injury to the health of these patients may never be called to our attention, we know that unless all of their gastro-intestinal symptoms have been cleared up, they are not making the best of life.

Good health is absolutely necessary to happiness, and necessary to the things upon which happiness depends. Hard work, clear thinking, poise, the ability to make friends, to win and hold the respect and esteem of associates, are the things on which success in any line of work depends. And top efficiency cannot be maintained without good health and a well functioning intestinal tract. That is why I think it is a most important responsibility of the doctor to stand firmly for no compromise with gastro-intestinal disorders.

# THE INDUCTION OF LABOR*

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To every physician who is either a general practitioner or a specialist in obstetrics there eventually will come a case which will make him ask of himself two questions, first—"Is it advisable for the good of this patient and her unborn child to interrupt the pregnancy by inducing labor?", and second, "If induction is indicated what are the methods that may be used that will give the best result to both mother and child?"

Induction of labor, after viability of the child, may be indicated in a variety of conditions such as toxemia, nephritis, cardiac disease, diabetes mellitus, tuberculosis, disproportion, marginal placenta praevia, habitual intra-uterine death at term, or post-maturity. Occasionally it has been misused by the profession as a means of securing a delivery by the doctor before he takes a trip. or for his own convenience as the Chicago obstetrician who has his deliveries "only on Wednesdays and Saturdays."

The methods used may be grouped into either surgical, medical or a combination of the two. The purely medical method is based upon the action of various drugs upon the uterus, stimulating contractions of the smooth muscle and instituting their continuance into frank clinical labor. The three commonest drugs are castor oil, quinine and pituitrin. The first two may be used alone or combined with the third. As far as is known castor oil has no deleterous effects upon either mother or child and may be given safely. A few women have an idiosyncrasy to quinine and small doses of quinine may cause severe maternal reactions resembling anaphylactic shock. Milder disturbances such as dizziness and tinnitus aurium are not uncommon. Some authorities(6)(2) are now reporting cases of fetal death in which an induction of labor was done and quinine had been used in moderate to large doses. No known causes could be assigned to these deaths but the conclusions reached were that all the deaths were due to quinine. Quinine, therefore, must be used with care, the possibility of maternal idiosyncrasy should be eliminated, and the drug used in small doses to prevent a possible intra-uterine fetal death.

The dangers of pituitrin—tetanic contractions of the uterus or tumultuous contractions with rupture of the body or extensive lacerations as a result—are well known but not sufficiently appreciated by the majority of the profession. Until one has seen an instance of uterine corpus rupture or extensive cervical laceration with hemorrhage and death, one is very apt to be a little too skeptical of the warnings concerning pituitrin.

The effect upon the fetus is probably indirect, but with precipitate labor cerebral hemorrhage may occur.

The use of pituitrin should be guarded and used only by a man who understands and appreciates its action and its dangers. It should only be given if the patient can be carefully watched and upon the onset of any tetany or violent contractions the physician should control the pituitary action by means of ether or chloroform anesthesia.

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The dosages are always small. After labor pains have been established pituitrin must be discontinued.

### SURGICAL INDUCTION

The surgical inductions are accomplished by the use of a bougie, or a bag, or by artificial rupture of the membranes. Aseptic precautions and sterile fields and instruments must be employed when surgical procedures are instituted. The bougie, or its equivalent a large rectal tube, is easier to insert than the hydrostatic bag. It passes through the cervix, frees the membranes from their attachment to the decidua as it passes into the uterine cavity. It usually curls up in the lower uterine segment, acts as a mechanical irritant instituting labor. It has the dangers of (1) infection; (2) freeing part of the placenta causing hemorrhage; (3) failure to institute labor in from 20 to 30 per cent of the cases in which it is used.

In order to introduce a bag the cervix must be dilated at least two fingers and the dilation frequently can only be obtained by mechanical dilators with the patient under anesthesia. The membranes should also be well freed from their attachment. The dangers of a bag are (1) infection, (2) failure in 20-30 per cent, (3) dislodgement of the head with malpresentation such as a brow or a face; (4) prolapse of a hand or a cord when the bag is expelled from the cervix and vagina.

When artificial rupture of the membranes is mentioned as a means of inducing labor—two questions are asked imediately—first "Do not intact membranes with the preservation of the amniotic fluid play a most important role in the mechanism of labor?" and secondly, "Is not dry labor long, difficult and to be feared?"

The amniotic fluid does act as a cushion for absorbing shocks and preventing undue pressure upon the fetus by the surrounding contracting uterine muscle. The intact membranes with their contained fore water do cause an even, gentle, slow dilation of the cervix preventing to some extent lacerations of the cervix. The amniotic fluid does help flush out the vagina, renders it alkaline and has a slight bacteriocidal power.

With the loss of the amniotic fluid and disappearance of intra-uterine hydrostatic pressure the gentle and even dilation of the cervix is absent. The presenting part is forced against the cervical os. The uterus alters in size and shape and with each contraction there is increased friction of the child against the uterine wall and cervical tissues, increasing the severity of the pains and tending to prolong labor. Not infrequently the cervix does not dilate properly, rotation may be affected and contraction ring develop.

Following puncture of the membranes the uterine cavity does not long remain sterile and ascending infection does occur. With all these facts at hand it would seem foolish to interfere with nature's proviso in the vast majority of cases—and by that is meant the induction of labor done for convenience.

In those cases in which induction by puncture of the membranes has been done under aseptic technic the maternal morbidity has not been materially increased, nor has there been a maternal death from infection in the various recently reported series in the literature(1, 3, 4, 5, 8, 9).

The dangers to the baby are practically those of the bag and bougie—malpresentation, prolapse of the cord, and in addition contraction ring dystocia.

Norris(7) in a study of spontaneous premature rupture of the membranes came to the conclusion that dry labor is as essentially a complicated labor and should be treated as such. In the recent studies in which the membranes have been ruptured artificially to induce labor the conclusions reached are that labor is not longer or more severe or complicated than it is in cases with intact membranes and fluid. This work has done much to change some of the ideas concerning dry labor and its difficulties. When prolonged tedious labor does occur it may not be due to the lack of amniotic fluid so much as to fibriotic changes in the cervix or uterine muscle; primary malpresentation or position; or to some derangement of the intrinsic nervous mechanism which is apparent in cases of primary inertia uteri not associated with rupture of the membranes.

### COMBINED MEDICAL AND SURGICAL

The latent period—the period of rupture of the membranes to onset of pains—lasts in some cases several days or longer. To prevent this complication there has been developed a combined medical and surgical induction. The uterus has been stimulated with castor oil and quinine, the membranes punctured, and in addition some workers have added small doses of pituitrin given by hypodermic or intranasally as recommended by Hoffbauer until labor is established. The latent period is markedly decreased and in some instances actual labor is decreased in duration.

Guttmacher and Douglas(4) report the average duration of labor in primipara as 10.15 hours compared with a normal of 17.59 hours, and in multipara the labor shortened to 5.43 hours as compared with a normal of 11.75 hours.

With their method they report a fetal mortality of 5.8 per cent, the normal in Johns Hopkins Hospital being 5.16 per cent, and a maternal morbidity of only 10.08 per cent based on a temperature of 100.4 on any two days after the first.

In order to gain some opinion as to the efficiency of the various methods, a study of 126 consecutive inductions of labor upon 97 patients at the University of Nebraska Hospital was undertaken. The series covers the years January 1, 1931, to April 1, 1934, and has been divided into groups according to the various methods of induction. The study has been arranged to include indications, paraty, percentage of success, duration of labor. maternal morbidity and mortality, and fetal mortality.

### METHOD A

The technic of this method is as follows:

8:00 A. M.—Quinine bisulphate grains V.
9:00 A. M.—Quinine bisulphate grains V.
10:00 A. M.—Castor Oil ounce I.

TABLE 1

| | No. Cases | Successful | Unsuccessful | Average Duration of Labor | High | Low |
|---|---|---|---|---|---|---|
| Primipara | 6 | 4(66.7) | 2(33.3) | 18 | 36 | 8.75 |
| Multipara | 23 | 10(43.4) | 13(57.6) | 7.55 | 16 | 1.5 |
| Series | 29 | 14(48.2) | 15(51.8) | .... | .... | ...... |

All patients were at or near term and the indications for the inductions were in addition to maturity, pyelitis, polyhydramnios, toxemia and myocarditis.

There was no maternal mortality or morbidity. Two of the fourteen babies were lost, a fetal mortality of 14.2 percent. In one case the fetus was dead prior to the induction, and in the other which was dead born an autopsy revealed intrauterine asphyxia, cause unknown.

Only one case was delivered by low forceps, one was a breech extraction, and the remaining cases were delivered normally and spontaneously.

### METHOD B

The technic of the method is as follows:

7:00 A. M.—Castor Oil ounce Iss.
8:00 A. M.—Quinine bisulphate grains X.
9:00 A. M.—Quinine bisulphate grains X.
10 A. M.—Hot soap suds enema.
11:00 A. M.—Pituitrin mimun I.
11:30 A. M.—Pituitrin mimun II.
12:00 Noon—Pituitrin mimun III.
12:30 P. M.—Pituitrin mimun IV.
1:00 P. M.—Pituitrin mimun V.
1:30 P. M.—Pituitrin mimun VI.
2:00 P. M.—Pituitrin mimun VII.
2:30 P. M.—Pituitrin mimun VIII.

If pains begin at any time during the course of the induction the remainder of the medication is discontinued. A dose of pituitrin greater than eight minums is never used.

TABLE 2

| | No. Cases | Successful | Unsuccessful | Average Duration of Labor | High | Low |
|---|---|---|---|---|---|---|
| Primipara | 16 | 11(68.8) | 5(31.2) | 16.5 | 78 | 1.5 |
| Multipara | 46 | 32(69.5) | 14(30.5) | 6.3 | 36 | 1.5 |
| Series | 62 | 43(69.2) | 19(30.8) | ...... | .... | ...... |

All patients except two were in the 38 weeks or over of gestation, and in the remaining two cases the period of gestation was 36 weeks. The indications for induction in addition to maturity were toxemia, disproportion, pyelitis, renal glycosuria, twins, secondary anaemia and myocarditis.

There were 44 babies without a fetal mortality.

There was no maternal mortality but there was a maternal morbidity of 9.3 per cent. One case developed a femoral phlebitis, one a bronchitis and there were two cases of intra-uterine infection.

Low forceps were done in six cases, mid forceps in one case, version was done twice and a breech extraction done once.

### METHOD C

This method is similar to B except that the membranes are punctured one hour after the enema is given. Pituitrin is used as in method B. The technic for puncturing the membranes is as follows:

The external genitalia are shaved and cleansed with tincture of green soap, which is washed off with sterile water. The skin is then prepared with tincture merthiolate—1-1000 and one ounce of two per cent aqueous solution of mercurochrome instilled into the vagina. With the patient in the lithotomy position the operator's gloved sterile hand is passed into the vagina. The cervix located, its dilation noted, and if it is posterior it is slowly and gently pulled anterior. One finger is passed to the internal os and if dilatation is insufficient to accommodate two fingers it is slowly obtained. A metal hook. the point at right angles to the shaft is then passed along the finger until it passes through the internal os. By manipulation of the hook with the index finger against the membranes the puncture is accomplished. The hook is withdrawn but the examining hand remains in place, the fingers locating the opening in the membranes and enlarging it. A small amount of fluid escapes, the finger then gently lifts the head up a little, lets it drop back, and a little more fluid allowed to escape. The procedure is repeated until all available fluid or at least 500 cc of amniotic fluid is lost. By keeping the operating hand in situ sudden loss of fluid is prevented, lessening the possibility of prolapse of the cord or of a small part, and repeated vaginal entries are not required. The head should by the free hand at the conclusion of the operation be guided into the pelvis. A careful check is kept of the fetal heart rate, the patient is put to bed, a sterile vulva pad applied, and if no pains result within one-half hour pituitrin is administered as in Method B. The procedure can be done without anesthesia in most cases.

Guttmacher and Douglas(4) at Johns Hopkins Hospital advise the pituitrin to be administered according to Hoffbauer's technic, which consists of soaking one ampoule of pituitrin in cotton and applying it intranasally, the application repeated every hour until pains are established.

TABLE 3

| | No. Cases | Suc-cessful | Unsuc-cessful | Duration of Labor | High | Low |
|---|---|---|---|---|---|---|
| Primipara | 11 | 11 | ............ | 8.38 | 31 | 1 |
| Multipara | 16 | 16 | ............ | 4.17 | 27 | 1 |
| Total Series | 27 | 27 | ............ | ..... | .... | .... |

The duration of labor was computed from the onset of pains. The latent period from rupture of the membranes to onset of pains in this series was not computed but Guttmacher and Douglas' figures are 1.8 hours in primipara and 3.8 hours in multipara. The length of labor in their cases was 10 hours in primipara and 3.2 hours in multipara.

The indications for induction in addition to the maturity were toxemia, pyelitis, and secondary anaemia. There was no maternal mortality. Two cases had temperature over 100.4 F., a maternal morbidity of 11.1 per cent. One case was due to pyelitis and in the other two cases there was an intra-uterine infection, the corrected morbidity being 7.4 per cent.

There was one fetal death, 3.7 per cent. In this case the pains began 4.5 hours after puncture of the membranes, but quieted down after 24 hours. The quinine was repeated and pains began again, labor being completed in another 3 hours. The child was still born. There was no evidence of cord pressure and an autopsy was negative. The fetal death might be classified as a quinine death.

Delivery was sponeaneous in all instances except one in which low forceps were used.

### METHOD D

Surgical induction of labor with the hydrostatic bag was done in eight cases.

TABLE 4

| | No. Cases | Successful | Duration of Labor | High | Low |
|---|---|---|---|---|---|
| Primipara | 2 | 2 | 12.7 | 18 | 7.5 |
| Multipara | 6 | 6 | 5 | 8 | 1.5 |

All patients were at term except one in which the term of gestation was 36 weeks. The indications were toxemia and rigid cervix in addition to the maturity. One case was delivered spontaneously, six by Potter podalic version and one by craniotomy, the rigid cervix which failed to dilate completely, the fetus died in utero. The cervical pathology was later reported as carcinoma. Only one case exhibited a temperature. Inasmuch as she was delivered by version, from which of the operative procedures did the infection arise?

### SUMMARY

A survey of the total series shows 92 successful inductions out of 126 attempts, a successful percentage of 73.01. The least success was obtained with castor oil and quinine, the best results with combined medical and surgical induction.

Thirty-five inductions were done upon primipara of which 28 or 80 per cent were successful. Ninety-one inductions were tried upon multipara of which 64 or 70.3 per cent were successful. Of the 97 patients who were induced 69 fell into labor and delivered with the first induction, a success of 72.2 per cent. Four of the remainder were not induced.

In 20 patients two inductions were tried, sometimes the same type was used and sometimes another was employed. In only one instance was the second induction a failure, but in 13 instances a different method of induction was used. In four cases a third induction was done, in every instance the third induction was successful but a different type of induction was used to obtain a successful result in three cases.

Factors that favor success in any induction are maturity; a thin cervix, well forward and flattened, the os dilated one or two fingers; and the presenting part in the pelvis. The presence of toxemia also seems to insure a higher degree of success. Fifteen toxic cases were induced, 12 or 80 per cent of them were successful. The three failures were all in the castor oil quinine group.

Delivery occurred spontaneously in 73 instances, forceps were used 9 times and podalic version was performed 8 times.

There were four fetal deaths in 93 babies, a fetal mortality of 4.3 per cent. The uncorrected fetal mortality for the University of Nebraska Hospital for the year ending June 20, 1933, was 4.58 per cent. There was only one premature baby in the group—the one delivered by craniotomy, and the number of prematures lost during the regular service constitute one-third of the total fetal mortality.

The maternal morbidity was 8.68 per cent as compared with the 21.4 per cent at the University of Nebraska Hospital for the year ending June 20, 1933. The various methods, therefore do not tend to increase morbidity when done under aseptic precautions.

There was no maternal mortality.

Labor was definitely shortened in the group in which the combined surgical and medical induction was used, but not affected materially in the other groups. The reduction in actual labor was almost one-half and the figures are very close to those of Guttmacher and Douglas(4). and of Jackson(5), who does not use pituitrin.

The experience with the various methods has been too small to set down any dogmatic rules.

The experience with breech presentations has been very limited in this series, but one would be very hesitant in recommending the combined medical and surgical induction because of danger of prolapse of cord and small parts. Undoubtedly the castor oil-quinine-pituitrin method would be much more suitable.

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## "AS ITHERS SEE US"

### A COUNTRY DOCTOR

Ten thousand people tried to crowd into a hall that holds only three thousand, the other night in New York, to see—what? A marvel of science, a freak of nature, a great musician or a famous explorer?

Nothing like that drew that great throng to Carnegie Hall. Nothing but a country doctor!

The greatest medical specialists of America, the heads of the great hospitals and medical schools, and thousands of ordinary folk turned out to see a simple, unpretentious, untravelled rural practitioner from Canada. It was a tribute such as few doctors ever get, but which most of them, we think, deserve.

Dr. Dafoe sprang to unexpected fame because of the Dionne quintuplets. To his skill and devotion the whole medical world attributes the survival of these five little French-Canadian sisters, the only set of quintuplets that is known to have lived more than a few hours after birth. Now six months old, they are as strong and healthy as any normal infants of that age, due to Dr. Dafoe's intelligent care.

Not every country doctor has a chance to prove his skill by bringing up quintuplets, but the country towns and villages of America and Canada contain thousands of medical men who are just as devoted, just as self-sacrificing, just as able, on the average, as Dr. Dafoe. We are glad to see this homage paid to him, since he has shown no signs of swelling of the head, because to us it seems a deserved tribute to the country general practitioner, who too seldom gets public credit for what he does for his community.

We venture that, down deep in their hearts, the great specialists who went to that meeting in Carnegie Hall envied this country doctor. If he is like other country doctors we know he occupies a place in the life and the hearts of his community that no city practitioner, however skillful, can hope to attain. They make more money. but they lose the more important and valuable considerations of life. The good country doctor occupies a position of security and contentment which the greatest may envy. He deserves and generally has the respect and love of his people to a degree that few men in any other calling ever command. It makes little difference to him whether his patients can pay their bills promptly or not; no difference insofar as his duty to them in time of illness or accident goes. They come to him with their troubles and their secrets, and often it is his wise advice and counsel, far more than his medicines, that helps to keep them going.

We do not believe that any scheme of "Socialized medicine" will ever become so useful as the "humanized" influence of the individualistic country doctor. And we think that is all for the best, too.

—Minden (Nebr.) Courier, Dec. 27, 1934.

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## *ANNUAL MEETING*
## *OMAHA*
## *MAY 14, 15, 16*

### *CALL FOR DUES*

*The annual dues to the Nebraska State Medical Association are now payable. Send $5.00 plus your county society dues to your county secretary.*

### *CALL FOR PAPERS*

*If you wish to read a paper before the next annual meeting, please send your name and title of paper to Dr. R. B. Adams, Secretary, Center McKinley Bldg., Lincoln, Neb.*

*A typewritten paper of six pages, double spaced, on ordinary letter head paper will take 20 minutes to read. By this rule you may gauge your paper to be read at the next annual meeting.*

---

*One hundred new members should be added to the Nebraska State Medical Association during 1935. Certainly never before has there been a greater need for a united front in the medical profession than the present.*

## ANNUAL MEETINGS

The Nebraska State Medical Association has been the integrator of the profession within our state. At its annual gatherings, friendships have been made and renewed, honor has been bestowed on those members to whom it was due, and consideration has been given to those scientific matters which are the common bond of all of us.

There are many changes taking place in the social fabric in which we are living. Governmental and civic agencies are rapidly encroaching on the practice of medicine. The need for laic education and professional cohesion has diverted much of the time of the officers of the Association and a large part of its funds in these directions.

These may be the reasons why the scientific programs of the Association have become a less attractive and less vital part of the annual sessions. The program of the recent postgraduate assembly in Omaha was largely of the type that could have been, and should be supplied by the State Association. The large attendance of the members of the Association at this meeting is proof of the need.

Deficiencies of the scientific assemblies at the annual meetings have been both as to content and presentation, chiefly perhaps the latter. Papers have been poorly prepared, repetitive, unduly long and sometimes self-serving. Discussors have too often indulged in oral autobiography rather than in a discussion of the presentation just made. The acoustics of the assembly room have sometimes been poor and the ventilation worse. The auditors have been inattentive and restless. Guest speakers have appeared on the platform without proper introduction, or indeed, with no introduction at all in some instances. Not long ago, a guest speaker, chagrined and resentful at the size and casuality of his audience. failed to complete his presentation and declined to leave his manuscript for publication.

In providing a program this year the committee is handicapped by the limited funds available for that purpose. The expense of securing nationally known figures from long distances is prohibitive. Valuable and instructive non-commercial scientific exhibits cannot be purchased. Other desirable features will have to be foregone because of the expense entailed.

There are, however, many well known and instructive speakers within reasonable distance that can be secured. The scientific exhibits provided by our members will be a feature well worth the time devoted to them. A properly ventilated room with a microphone will be secured. Finally, it will cost nothing to begin the sessions at the appointed hour, to limit all presentations to 20 minutes as regulated by our by-laws, and to end all discussions after five minutes under the same provision.

The program committee feels that the interest in the activities of the House of Delegates and other non-scientific groups established by custom rather than by law need not be exclusive of that in the general scientific assembly. It will endeavor this year to make the latter competitively attractive.

—J. W. Duncan, of Program Committee.

## AFTER SIXTY-FIVE—WHAT THEN?

A forward looking correspondent writes "Have often wondered why the Medical Association, National or State, does not arrange for some sort of a pension for the older men who have to retire from active practice." * * * "If every active man could be brought to pay in $10 to $12 per year it would mean something. We do it for Shriners hospitals to take care of the public, but we do nothing to take care of our own. Has the profession ever been sounded out on such a proposition?"

This brings us at once to the proposition of the Old Peoples' Home Foundation in process of organization at New Carlisle, Ind., from the prospectus of which we quote the following:

> The nucleus for such a retreat—a 200-acre semi-forest reserve near Lake Michigan and convenient to Chicago—is offered, providing a quarter-of-a-million-dollar building and equipment fund is secured. Already several voluntary subscriptions have been offered by philanthropic Americans "when and" assurance is given of the erection of a manor house, containing kitchen, dining room, auditorium, reception rooms, library and recreational rooms, connected by a covered runway leading to a series of detached residential structures of bachelor apartments where a hundred medically-minded men and/or women may spend their declining years among modern conveniences and surroundings.
>
> The upkeep of such a retreat could be met by life membership fees varying from $2,000 to $5,000, according to the applicant's age and physical condition, and accommodations contracted for thereby making the Home self-supporting and perpetual.
>
> The question uppermost in the minds of the sponsors of this undertaking is whether there is a need and field for such—to ascertain just how many reservations can be booked for occupancy on completion. In other words, a repetition of the experience of Senator Phipps' Colorado Tuberculosis Sanitarium is to be avoided.
>
> That's the "why" of this letter. Your cooperation is urged to sound out your readers (in the interests of all concerned), ascertaining if among them are candidates for admission—men and/or women of 65 or more years eligible to participate in the benefits of a Medical Arts Home: if so, that they immediately furnish us their names and addresses so our findings may be reported to those sponsoring the movement. This may turn a dream into a reality. At any event, no applicant will be asked to invest one cent until the Home is assured.

Have you made the grade and accumulated a "rainy day reserve" to meet your requirements as long as you (and/or your life partner) live?

No! Then—

If a palatial, club-like Medical Arts Home was erected, convenient to Chicago, with perhaps another adjacent to the National Capital and still another somewhere in California, where for from $2,000 to $5,000 you could purchase life membership to retire "After 65"—to go to live, not to die, among your own kind and generation—would you be interested?

Such a plan is under consideration by a group of American philanthropists willing to provide the grounds and buildings as a memorial to medical science, providing a sufficient number of aged men and women in the medical and allied arts would appreciate such operations enough to become members. If "Yes" is the answer, representing the concensus of opinion of a sufficient number of the profession interested, then a dream may become a reality.

The *Nebraska State Medical Journal* gives space to this announcement because of its possible merit and seeming news value, but withholds endorsement until "when and" the proposal develops beyond the embryo.

For further particulars address: Old Peoples' Home Foundation, New Carlisle, Indiana.

## HOSPITALIZATION OF THE MENTALLY ILL

Members of the House of Delegates and others have been solicited by Dr. John M. Grimes to purchase a book that he has printed purporting to contain the results of the study recently made by the Council on Medical Education and Hospitals of the hospitalization of the mentally ill in the United States. Such individual use of the Council's material is, of course, wholly unauthorized. A report prepared by Dr. Grimes when he was employed by the Association was not published because in the opinion of the Council and an advisory committee of psychiatrists and neurologists his conclusions were not supported by the evidence presented. Two partial reports that have already been published will be supplemented when further studies have been completed.

—J. A. M. A., Nov. 10, 1934.

## "DOC" BIXBY, COLUMNIST

Ammi L. Bixby, columnist, for forty years on the Lincoln State Journal as the author of Daily Drift, died Christmas Eve while reclining on a couch for a nap. He was the original Columnist, we believe, although now he has numerous followers. He was seventy-seven years of age.

"Doc" Bixby was a well known figure around state medical society conventions when meetings occurred in Lincoln and he had numerous friends in the medical profession. He liked to associate with physicians. As a young man he began to study medicine and attended Rush Medical College for one year. He came to Nebraska and located in Nance County first as a pioneer physician, but soon switched off to the newspaper business with which he was familiar. He has been connected with the Lincoln State Journal since 1892.

He published Driftwood, Memories, Bix Abroad, Bix in America and other books.

His wife was killed about seven years ago in an automobile accident. A son and three daughters survive him.

The medical profession, as well as laymen, will long remember the quaint, good-natured and oft sarcastic rhymes of Doc Bixby.

## FOOD AND DRUG ADMINISTRATION FUNCTIONS

A news release from the Department of Agriculture gives a vast amount of information about prosecutions for disposing of fruits containing poison residue exceeding safe limits; for disposing of filthy cream and butter; rotten tomatoes; impure canned sea foods. etc.

In the drug field, seizures were effected of shipments of chloroform, tincture of opium and witch hazel extract, all found below standard. "Patent" medicine seizures included a consignment of "Fink's Magic Oil," shipped from Cincinnati, to Newburgh, N. Y., labeled as a treatment for rheumatism, toothache, earache, sore throat, pains and aches, diarrhoea, chills and fever, cholera, cholera morbus, colic, mumps, catarrh, asthma, eczema, boils, ringworm, and bronchitis. These claims, the Government alleged, were false and fraudulent. Other medicines seized because of label claims that could not be substantiated were "Terraline" and "Terraline Creosote" for pulmonary disorders and bronchial catarrh; "Power's Asthma Relief" for asthma and hay fever; a "candy worm expeller" for intestinal worms and tape worms; and a "veterinary balm" for various disease conditions of livestock.

Four shipments of "patent" medicines bearing false and fraudulent therapeutic claims brought a fine of $200 against George E. Steketee, trading as Steketee's Family Medicines at Grand Rapids, Mich.; the goods had previously been removed from the market by seizure. Below-standard pharmaceuticals shipped by Blackman & Blackman, Inc., New York, N. Y., resulted in a fine of $350 against the corporation.

Fines were imposed on "patent" medicines bearing false and fraudulent therapeutic claims, C. W. Link Drug Co., New York, N. Y., $25; Home Remedy Co., Pittsburgh, Penna., $100; Tabonucol Mfg. Co., San Sebastian, P. R., $10; and Microsan-Mosene Labs.. Inc., Los Angeles, Calif., $400, suspended, and the defendant, Mrs. Corinne Ricks, placed on probation for two years.

## DIABETES MORTALITY INCREASING

In spite of the discovery and introduction of insulin and the modern laboratory method of handling diabetes in detail, the death rate has nearly doubled in twenty years. This startling statement is based on an article in the *Spectator* for August 16, 1934, by Frederick Hoffman, LL.D., consulting statistician. Probably 30,000 people in the continental United States die annually from diabetes.

In the registration area of the United States the diabetes mortality for 1922—the year before the discovery of insulin—was 18.3 per 100,000; in 1932 it was 22 per 100,000. For several years following the introduction of insulin the death rate fell below the pre-insulin era as for instance in 1925 the mortality was 16 per 100,000.

In the United States we have the highest diabetes mortality compared with a number of European countries, the rates in Europe ranging from 4 in Estonia to 15 in England and Wales and 18 in the Netherlands.

It is notable that of ten American cities having the highest diabetes mortality four are in Eastern Pennsylvania. This might suggest an inquiry into the dietetic habits of the people known as Pennsylvania Germans who are well known to be generous livers.

Hoffman concludes: Regardless of much study, a vast amount of research is required to provide an explanation for the wide divergencies in the diabetes death rates throughout the world and for our own unenviable position of having about the highest diabetes death rate as far as the official figures enable one to judge.

## MEDICO-LEGAL

### DIAGNOSIS OF DRUNKENNESS

Accurate and positive diagnosis of borderline cases of acute alcoholism is of great importance in legal medicine. Marked intoxication is easily recognized, but the frank syndrome of drunkenness may not be present even when behavior is seriously affected by alcohol. Fractured skull or serious illness may simulate drunkenness. Alcoholism may be present and the odor of liquor disguised by that of uremia, ketones, garlic, essential oils, or even halitosis.

The amount of alcohol present in the blood, urine, and even the breath may be used as an index of the degree of drunkenness. The concentration of alcohol in the blood is directly correlated with symptoms of intoxication, as it is an index of a similar concentration in the central nervous system, responsible for the symptoms.

When a single drink of alcohol is taken by mouth the maximum concentration of blood alcohol is reached in about one hour. It disappears from the blood at a uniform rate of 12 mgm. per hour per 100 gms. of blood.

The rapidity with which the maximum concentration is reached, as well as its height, are influenced by several factors. Strong drinks produce maximum concentration more quickly. Slow drinking will retard the process. Intoxication from beer follows slowly because of the large amount necessary. Bread and milk markedly retard absorption of alcohol from stomach and small bowel, and other foods have a lesser effect. The larger the individual the lower the blood concentration, unless the weight is due to fat.

In a lengthy and important contribution Southgate and Carter(1) point out that the relation of the alcohol in the blood to alcohol in the urine is fairly constant and the excretion of alcohol in the urine is a guide to the concentration in the blood and therefore an index of alcoholic intoxication. However small the quantity of alcohol in the blood, a higher concentration occurs in the urine 30 minutes after ingestion. As long as alcohol is present in the blood it can be detected in the urine. At one hour the urine alcohol-blood alcohol ratio is 1.32, while at two and one-half hours it is 1.35.

The concentration of alcohol in expired air approaches that of the blood and keeps pace with that of the urine.

From Bogen's(2) work at Los Angeles we may conclude that the per cent of alcohol in urine and breath have clinical significance as follows:

Less than 0.1%—no intoxication present.

From 0.1 to 0.2%—over 50% will be clinically intoxicated.

From 0.2 to 0.4%—about 75% intoxicated.

Over 0.4%—all are frankly drunk.

The odor of alcohol will be present in over 75% of those having 0.1 to 0.3% alcohol in the urine, and in all cases with over 0.3%. Dilated pupils and flushed face will be present in less than 30% of this group.

Inability to stand straight without swaying will be present in all cases with 0.3% alcohol in the urine, and incoordination of the hands is most frequent in this group.

Garrulousness, volubility, euphoria, boisterousness or pugnacity will be most pronounced in those with 0.2 to 0.4% alcohol in the urine. Above these figures they tend to lapse into coma.

—B. Carl Russum, Omaha.

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## EDITORIAL PARAGRAPHS

If the Townsend bill should pass would we not have a nice time at our house?

It is stated that in the United States crime is increasing at the rate of 3% per annum.

New ad in this number is the Corn Products Refining Co.

The 1935 annual Clinical Congress of the American College of Surgeons will be held in San Francisco, October 28-November 1.

It appears that the American Radium Society and the American College of Radiology have declared war on the rental of radium. The general profession will wonder what it is all about.

There is yet no evidence that the depressed economic conditions of the past few years have lowered the general health of the people of the United States, according to the Surgeon General of the United States Public Health Service.

An accumulation of articles on various phases of the goiter disease suggested the publication of a number largely devoted to the treatment of goiter. May we hope the number will be enjoyed.

The Southeastern Surgical Congress, through its secretary, Dr. B. T. Beasley, announces the sixth annual assembly of the congress which will be held in Jacksonville, Florida, March 11, 12 and 13, 1935. The congress has met previously in Atlanta, Birmingham and Nashville.

Cannabis indica, cannabis Americana or cannabis sativa as variously named is the plant from which the Indian medicine "mariquana" is made. It is outlawed in many states and there is much smuggling of the medicine by the Indians with an occasional prosecution and punishment.

Dr. Theobald Smith, discoverer of the cause of Texas fever in cattle and the fundamental discovery of the role of the intermediate host in parasitic and infectious diseases died recently. He was at the time of his death director of the Rockefeller Institute for Medical Research at Princeton, N. J.

The care of indigents by hospitals for auto injuries is a burden. Ohio in 1932 passed a law for the payment of these cases from the auto license fund. A copy of this law was published in *The Nebraska State Medical Journal,* June, 1934. Representative L. L. Dunn of Lincoln has introduced a bill in the Nebraska Legislature for that purpose.

A famous Englishman, J. Milner Fothergill, with an array of titles as long as the alphabet, over fifty years ago published a book entitled *"Indigestion, Biliousness and Gout in Its Protean Aspects."* It was widely, one may say almost universally, believed fifty years ago that "biliousness" was a real disease entity.

The courts of Nebraska are to be called upon to decide whether a contract between two physicians, partners, providing, that in case of dissolution of a partnership, the junior member may not practice within a radius of fifty miles from a given point for three years, is valid, or contrary to public policy and void. In either event it is too bad that such cases happen.

It is interesting to note that for the calendar year 1933 the general death rate, 10.5 per 1,000 population, was the lowest ever recorded in the United States; and the rate for 1932 was next lowest, 10.8 per 1,000. While health conditions remained comparatively good for the first half of 1934, the death rates for many localities were higher than those for the preceding year, says Surgeon General Cummins in his annual report.

Louis J. Auerbacher, the first to suggest that the vitamin D irradiation of milk might be an effective means of curbing infantile rickets and the man who launched the successful experiments toward that end in association with the late Dr. Alfred F. Hess, has been appointed Director of Medical Relations of The Borden Company, it was announced today. Irradiated milk is widely regarded as one of the outstanding nutritional achievements of the last decade.

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## OBITUARY

**Ellis H. Whitehead,** Sioux Falls, S. D.; State University of Iowa College of Medicine, 1904; in practice before the World war successively at Washta, Iowa, and Osmond, Nebr.; in medical corps during the World war in France establishing base hospitals for the United States army; died December 19, 1934, at the home of a daughter at Sioux Falls, aged sixty-five years. He had recently been located at Brookings, S. D.

**Sheldon E. Cook,** Lincoln, Nebr.; native of Canada; University Toronto, Faculty of Medicine, 1884; practitioner at Holdrege from 1884 to 1889; in the medical service of the Burlington Lines in Chicago for one year; in eye, ear, nose and throat practice in Lincoln since 1891; part owner and joint editor with Dr. H. W. Orr of the Western Medical Review, 1899-1906, succeeding Dr. George H. Simmons when the latter became editor of the Journal of the American Medical Association; highly respected member of the Nebraska State Medical Association; a man well versed in general science and philosophy; died following an illness of some months December 31, 1934, aged about seventy-seven years.

A widow and daughter survive.

**John A. Copeland,** Long Beach, Calif., Iowa University College of Medicine, 1900; practitioner at Colerige, Nebr., nine years from 1900 to 1910; practitioner at Long Beach, Calif., at time of death; died December 6, 1934 of a heart affection, aged about fifty-nine years.

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## TUBERCULOSIS ABSTRACTS

There is no substitute for the family physician. He is usually the first to see the patient with tuberculosis and he determines what special service may be necessary. Though the specialist may assume responsibility during the active treatment period of this chronic disease the family physician carries the burden of caring for the patient during his entire life.

### PROBLEMS OF PULMONARY TUBERCULOSIS IN GENERAL PRACTICE

The Commission on Medical Education, in studyiing the diagnoses reported by a group of general practitioners, finds that the diagnosis of tuberculosis is an uncommon one. Yet in 1931, 80,562 new patients were admitted to the 509 special tuberculosis hospitals in the United States. The reason for this discrepancy between the frequency of tuberculosis in the community and the rarity of its recognition by the general practitioner is not difficult to explain.

Anti-Tuberculosis propaganda and the development of specialists in tuberculosis have produced an apathy on the part of many doctors toward this disease. The family doctor thinks that he no longer sees the cases as he used to. Now they are likely to be recognized and segregated by school physicians, industrial physicians, life insurance examiners, or by some special agency designed to combat the spread of the disease.

Most cases are treated while the disease is active by specialists in special hospitals. The result is that the general practitioner has lost interest in this subject. He has grown careless in the art of history-taking and physical diagnosis, and has washed his hands of the treatment of tuberculosis. This is an unfortunate state of affairs, for the general practitioner, in spite of the trend of the times, should be as keenly alive to the clinical problems of tuberculosis as ever. If he is a good doctor, his patients and their families will always eventually return to him for advice, no matter through what special hands they may pass on the way, and he remains their court of last appeal. If he is to give sound advice in regard to tuberculosis he must be familiar with it.

The author then describes several illustrative cases. One was that of a young woman with a clearly defined chronic tuberculosis beginning insidiously and becoming well advanced before it was recognized. While still in the sanatorium she married and soon after was discharged as well. A baby was born. Nine years after her first visit to the clinic, when the baby was five years old, he developed tuberculosis and his mother began to have a slight afternoon temperature.

An alert family physician might well have been the one to advise her in regard to such matters as marriage and pregnancy, to follow up her case, to keep her under supervision and to outline the proper plan of life for her. As it was, the tuberculosis specialist gave her admirable hospital care, yet after she left the sanatorium, neither he nor any one else was concerned with her method of living, and the end-result was a preventable medical calamity. There are too many cases of this description in all our hospitals.

The author has been struck by the number of people with tuberculosis who have come to the Peter Bent Brigham Hospital, and who have been transferred later to tuberculosis hospitals in various parts of the country, whose relations have kept returning to the house officers or staff for subsequent advice involving such questions as the following: Should the sanatorium doctor be allowed to inject air into the patient's chest or to do a more radical operation? Is hemoptysis an ominous sign? How long shall the patient stay in bed, and is the sanatorium doctor right in allowing the patient to get up so soon? Is it proper for the sanatorium doctor to have the patient's tonsils removed? Does the sanatorium doctor know what he is doing? Questions of this sort indicate that the family doctor should and can be a very helpful liaison officer.

Tuberculosis often shows up unexpectly in young people supposed to be perfectly healthy and with symptoms simulating an acute respiratory infection or as a sudden hemoptysis. Cases of this type are always at first seen by the family doctor.

Pulmonary tuberculosis is still so common a disease as to be ever-present, and general practitioners are seeing it frequently, perhaps failing to recognize its significance.

Problems of Pulmonary Tuberculosis in General Practice, Reginald Fitz, M. D., Annals of Internal Medicine, Aug., 1933.

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## CLAIMS IN PROMOTION OF IRRADIATED EVAPORATED MILK

The committee on foods of the American Medical Association has accepted the following principal claims to be used in the promotion of irradiated evaporated milk:

1. The vitamin D content of Irradiated Evaporated Milk is increased by direct irradiation with ultraviolet rays (U. S. Patent 1680818 under a license from the Wisconsin Alumni Research Foundation) making this a highly potent vitamin D milk for infants and children and for the special nourishment of bones and teeth by promoting a more efficient utilization of calcium and phosphorus.

2. Irradiated Evaporated Milk is pure fresh cow's milk with approximately 60% of the water removed by evaporation under reduced pressure. It is not a patented or proprietary food but a staple commodity.

3. Irradiated Evaporated Milk supplies all of the important food values of whole cow's milk, including those vitamins which milk can be depended upon to supply, plus an extra amount of vitamin D created by irradiation.

4. Irradiated Evaporated Milk is sterile and therefore is the safest milk obtainable; it cannot introduce pathogenic micro-organisms to induce diarrhea in infants.

5. Irradiated Evaporated Milk is more readily digested than raw milk or milk boiled only a very short time.

6. Irradiated Evaporated Milk casein curd in the stomach is very fine and soft in texture or structure. It resembles in physical structure the curd of human milk.

7. Irradiated Evaporated Milk is homogenized which produces a fine dispersion of the fat particles and renders them more readily acted upon by digestive enzymes and more thoroughly assimilated.

8. Irradiated Evaporated Milk is considered by many pediatricians to be the best form of cow's milk for preparing the baby's formula.

9. Irradiated Evaporated Milk is a most convenient and economical whole milk supply for family and community.

10. Irradiated Evaporated Milk is usually less allergic than raw milk or milk boiled only a short time.

11. Irradiated Evaporated Milk has been shown to be valuable in special diets for adults when a readily digestible form of milk is required.

12. Irradiated Evaporated Milk enables the introduction of more milk in the diet because it is concentrated.

13. Irradiated Evaporated Milk whips. Because of the homogenization it produces a "buttery" flavor and a characteristic texture and consistency in foods in which it is used.

14. Irradiated Evaporated Milk is of special value in the family feeding programs of relief agencies because of its economy, nutritive value, and keeping qualities.

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## THE SOCIETIES

The Hall-Merrick-Howard **Tri-County Medical Society** held its annual business meeting and Christmas party, December 13. Dr. A. P. Synhorst, Grand Island, was elected president; Dr. J. E. Benton, Central City, vice president, and Dr. Amil Johnson, Grand Island, secretary.

A feature of the meeting was the address on the life of Lord Lister, by Dr. B. R. McGrath, retiring president.

In his address, Dr. McGrath termed Lord Lister the "Messiah of Modern Medicine," and reviewed how cruel and fatal methods of surgery were prior to his time.

He traced the controversies, the antagonism and heart aches which came with the efforts to give the people the benefit of a new and radical change in the practice of medicine and surgery. Despite this, Dr. McGrath stated, Lord Lister received a high reward in that before his death, which occurred only twenty-two years ago, he saw all of his theories and technique weather the storms of opposition and put the practice of medicine on a safer and sounder basis.

The Sisters of St. Francis served a delightful dinner and also furnished several musical selections. Musical numbers also were given by the glee club and other local talent.

The **Scotts Bluff County Medical Society** featured an all-day clinic at the Methodist hospital, December 13, the speakers being Drs. Forbes, Mason and Allen, all of Denver. The same men also were the banquet speakers in the evening. Dr. J. B. Schrock, Scottsbluff, was elected president; Dr. A. L. Cooper, secretary-treasurer, and Dr. G. W. Pugsley, Bayard, delegate.

The **Lancaster Medical Society** elected Dr. Stanley Zemer president at the annual meeting held December 18. Other new officers are Dr. Harry Taylor, vice president, and O. A. Reinhard, secretary. Dr. Clayton F. Andrews was re-elected treasurer as was Dr. E. W. Rowe, censor, and Dr. H. W. Orr, historian. Delegates to the state convention are Dr. E. G. Zimmerer and Dr. F. L. Rogers, and Dr. J. J. Hompes and Dr. A. D. Munger are alternates. Dr. J. S. Welch was elected trustee.

Two Wauneta doctors were honored at the meeting of the **Southwestern Nebraska Medical Society** in McCook, December 13. Dr. C. Robert Carlson was elected president of the group for the coming year and Dr. H. H. Grosbach was named vice-president, representing Chase county.

After the business meeting held in the Keystone Hotel a movie on thyroid surgery was shown.

At a meeting of the **Dodge County Medical Society** at Hotel Pathfinder in Fremont, December 17, Dr. R. A. Davies of Arlington was elected president, Dr. H. D. Meyers of Howells, vice president, and Dr. H. H. Morrow of Fremont, secretary and treasurer.

The election followed the annual holiday dinner party of the association and ladies' auxiliary at Hotel Pathfinder. Covers were laid for more than sixty physicians and their wives. The table was beautifully appointed in holiday colors.

Dr. J. M. Greene of Falls City was elected president of the **Richardson County Medical Society** for the coming year at the regular session held at Hotel Weaver, December 19. Election of officers followed dinner at 6:30.

Dr. E. P. Bozarth of Humboldt was chosen vice president and Dr. C. L. Hustead of Falls City, secretary-treasurer. Dr. H. R. Miner of Falls City was named to fill the unexpired term of state delegate.

The program was presented by three Lincoln physicians as follows:

"Current Pediatrics," Dr. W. O. Colburn; report of cases of (1) "Vascular Occlusion Complicating Pneumonia," (2) "Vall Thrombus in Left Auricle," (3) "Extreme Daily Variation of Blood Sugar," Dr. F. L. Rogers, and "Development of Eclampsia and Treatment," Dr. H. E. Harvey.

A report was made on the resume of monthly meetings and programs for the past year.

The **Thayer County Medical Society** met at the Blue Valley hospital, Hebron, December 20, as the guests of Dr. W. I. McFarland.

A seven o'clock dinner was enjoyed by the society and guests, after which the annual election of officers was held. Dr. M. F. Schafer of Alexandria was elected president, Dr. L. E. Grosskopff, of Deshler, vice president, and Dr. R. F. Decker, of Byron, secretary-treasurer.

The scientific feature of the meeting was presented by the reading of papers by Drs. E. B. Reed and O. A. Reinhard of the Lehnoff clinic at Lincoln. The subjects read and discussed were Pernicious Anemia and Colitis and Irritable Colon.

The **Dawson County Medical Society** met for dinner at the City Cafe, Gothenburg, December 21. A delicious meal was served at tables prettily decorated with Christmas decorations. Dr. Edgar V. Allen, son of Senator Chas. E. Allen of Cozad, now with the Mayos at Rochester, was the speaker of the evening. Upward of twenty attended the meeting.

At a meeting of the **Fifth Councilor District Medical Society** at Hotel Pathfinder, Fremont, following a dinner attended by forty physicians and others, Dr. K. S. J. Hohlen, Lincoln; Dr. B. F. Bailey, Lincoln; Dr. William Shearer, Omaha, and Dr. Homer Davis, Genoa, spoke on the FERA set-up and economics related thereto. The meeting was one of unusual interest.

Dr. A. C. Blattspieler, Tobias, entertained the **Fillmore-Saline County Medical Society** at a venison dinner, January 4. Dr. Blattspieler is a mighty hunter and the venison is the product of his prowness on a hunting trip into Canada last fall.

The **Southwestern Nebraska Medical Society** held its January meeting on the 10th at the Keystone hotel, McCook, following a dinner.

The guest speakers were all from Lincoln and were Dr. Earl V. Wiedman, Dr. Roy H. Witham, and Dr. Miles J. Breuer.

Dr. Wiedman spoke on "Acute Abdomen in Juvenile Cases." The topic of Dr. Witham's address was "The Modern Handling of Cases of Peritonitis." Dr. Breuer spoke on "New Development in the Treatment of Arthritis."

The **Gage County Medical Society** held its annual meeting January 9. Talks were given on two months of medical relief. The following officers were elected: Dr. H. R. Brown, president; Dr. C. E. Rice, vice president; Dr. F. W. Buckley, secretary-treasurer.

The **Otoe County Medical Society** held its annual meeting at Nebraska City, January 7. Dr. T. L. Weeks was elected president. Dr. N. F. Hicken, Omaha, gave an interesting paper on Goiter.

**The Madison Six County Medical Society** held its annual meeting in the parlors of the Presbyterian Church, Norfolk, January 22. Fifty physicians and their ladies partook of the dinner preceding the scientific program. Dr. G. E. Robertson and Dr. Leo McGoogan, Omaha, put on the program, a discussion of the needs of vitamines and minerals in pregnancy and babyhood. Both presentations were well received. Dr. C. A. Pierson of Beemer was elected president, Dr. George Salter, Norfolk, vice president, and Dr. R. A. Frary, Stanton, was reelected secretary-treasurer.

## HUMAN INTEREST TALES

Dr. George Clark, Elwood, lost his coupe by fire recently.

Dr. J. C. McKinley, York, spent Christmas in Chicago with relatives.

Dr. F. W. Winter (retired), Adams, is spending the winter in Los Angeles.

Dr. L. E. Finney, Lincoln, has become county physician of Lancaster county.

Dr. D. T. Quigley, Omaha, spoke before the Chicago Executive's club last month.

Dr. and Mrs. W. R. Talboy, Newcastle, are spending the winter at San Diego.

Dr. and Mrs. H. L. Clarke, North Platte, are enjoying a trip to Mexico City.

Dr. B. B. Hauser, Hooper, was for several weeks a patient in a Fremont hospital.

Dr. George T. Erickson, formerly of Hackensack, N. J., has located at Broken Bow.

Dr. and Mrs. W. J. Douglas, Atkinson, spent the holidays with their daughter in Chicago.

Dr. George E. Lewis, Lincoln, recently became president of the local Cosmopolitan club.

At the point of guns in the hands of bandits, Dr. F. O. Beck, Omaha, handed over a 3 carat diamond, recently.

Dr. Martin H. McNeil, for several years in practice at Harrison, has gone into government service at Pine Ridge, S. D.

Dr. and Mrs. C. G. Amick, Loup City, spent the Christmas holidays with Dr. Amick's parents in San Diego, California.

There is no physician in Sioux county and Harrison, a thriving town in that county, would like a physician to locate there.

Dr. R. E. Bray, for twenty-five years in practice at Martinsburg, has located in Norfolk in association with Dr. G. A. Young.

Dr. P. J. Flory and family, Pawnee City, returned from a year's sojourn at Tucson, Ariz., the doctor much improved in health.

A sneak thief plundered the car of police surgeon Dr. Guy Goodrich, Omaha, recently, taking his kit containing a lot of narcotics.

Dr. Thomas Findley and Dr. David Findley, Philadelphia, spent the holidays with their parents, Dr. and Mrs. Palmer Findley, Omaha.

Dr. L. D. Fochtman, Cozad, and a friend, recently made a trip to California by auto. Returning they are credited with having driven 714 miles in one day, from Wichita Falls to Cozad.

The profession will be interested to learn that Miss Madalene Hillis, librarian of the University College of Medicine Library, Omaha, has been elected president of the Nebraska State Library Association.

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## BOOKS REVIEWED

KEY TO SYMPTOMOLOGY—The Significance of Symptoms, Diagnosis by Elimination. BOOK I: OPHTHALMOLOGICAL DISEASES. By D. D. Stonecypher, Nebraska City, Nebr., Key System, Publishers, Nebraska City, Nebr. The most unique treatise on disease we have ever seen, this work is not a book, not a toy, but a well arranged Card Index with a Key Card, hinged into a heavy cardboard carton for safety and convenience.

The writer's powers of description fail him in trying to do this device justice, but the result is a device, neither machine nor text-book, but having the qualities of each. It is mechanical in its operation and informative in its content. It seems to be the only work of its kind, as it presents the meaning of any group of symptoms occurring together.

The method of use of the Key to Symptomatology is quite easily grasped. One or more "Symptom Cards" are superimposed on the colored "Key Card" and automatically there is revealed a list of diseases possible to be present as a cause of those symptoms. The value of this is that it calls to mind diseases which have been overlooked as a possibility in the diagnosis, and rules out such diseases as should not be considered.

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## CAUSE OF DEATH IN PNEUMONIA

Harlow Brooks, New York (*Journal A. M. A.*, Oct. 20, 1934), investigated the immediate cause of death in pneumonia, both from a clinical and from an anatomic standpoint in 200 consecutive cases, which were studied clinically and that finally came to necropsy. No differentiation has been attempted to segregate the various anatomic types of pneumonia, since the histologic process is essentially identical in all. Clinical study of the manner of death from ward observation and from the histories and charts indicated the death to be due apparently to cardiac failure in seventy-seven instances. At necropsy 116 cases showed definite chronic cardiac disease which clearly existed before the onset of the pneumonia. Seventy-three cases showed acute cardiac lesions which developed clearly during the disease and which played a very certain part in the termination by death. The heart was mentioned as normal or entirely ignored among the factors concerned in death in twenty-nine instances. Fourteen cases showed acute valvular endocarditis. These data, the author believes, substantiate the impression of most experienced clinicians that patients with pre-existing cardiac disease are particularly bad risks in pneumonia. No clinician, however, can be blind to the fact that cardiac failure alone is not the sole factor in death in pneumonia from circulatory failure. Death from circulatory failure is often preceded by days, hours or moments of dilatation and congestion of the capillaries and veins, while the heart action itself is still apparently fairly maintained. There can be no question whatever that vasomotor paralysis of the superficial and deep capillary beds is a most important factor in the picture of circulatory collapse. The study confirms the general clinical impression that septicemia is in all probability the one most constant serious clinical sign of grave import. Fourteen cases showed active acute endocarditis, thirteen acute meningitis, twenty empyema, and six lung abscess. In many cases a septic type of temperature with profound toxemia even in the absence of confirmatory blood cultures appears to have precisely the same sinister prognostic weight as positive cultures. The degree of sepsis present is the most significant factor in prognosis in the disease and its presence is the most frequent basic cause of death. Meningitis has been found to be a frequent immediate cause of death in the group. Its occurrence bears no relationship to the extent or location of the lung invasion, or apparently to the type of pneumococcus present. It was present as the dominant cause of death in thirteen instances in this series. The degree in which anoxemia plays a dominant part in the immediate cause of death in pneumonia is difficult to ascertain with any satisfactory degree of certainty. The author states that so far as his observations go, the extent of lung involvement is of but minor value as a prognostic factor in death in pneumonia. In his cases fifty showed involvement of a single lobe, in forty-two two lobes were invaded, in nineteen three, and in eighteen four or five lobes were involved. In seventy-one instances the extent of lung involvement was not adequately defined in the histories or protocols. Atelectasis and massive collapse are probably more frequent as terminal factors than is generally supposed. Embolism and thrombosis are probably rare as terminal causes in pneumonia. Chronic alcoholism, with its attendant exposure and other concurrent factors, is an important factor in susceptibility to the disease.

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## THE PHARMACOLOGIST AND THE THERAPEUTIST

John H. Musser, New Orleans (*Journal A. M. A.*, Sept. 8, 1934), deals with the self-evident fact that pharmacology and therapeutics are closely related and states that as a result of the variations in the character of the work that the pharmacologist and the therapeutist do, as a result of the circumstances under which each works, because the one is often a doctor of philosophy and the other always a doctor of medicine, because the one works with the human and the other on a lower animal, necessarily considerable divergence of results will be noted by the two observers when a comparable or a similar drug is given. Thus there has gradually grown up a tendency for the one man to look with skepticism on the work of the other. The pharmacologist becomes irritated or disturbed by the failure of the therapeutist to put into practice the results of his experiments. He feels that his results could and should be confirmed always by the man who is administering drugs. He loses patience with the man who cannot always accurately control his clinical experimentation. The therapeutist, on the other hand, is wont to criticize the laboratorian on the basis that he does not know under what circumstances the practitioner has to do his work. He contends that the pharmacologist's work is not practical: he holds that the experimental animal is a different animal from the human animal, and he maintains that a laboratory test is not comparable to the test of the efficacy of the drug in man. Utopia would be such a close working affiliation as existed between McKenzie, the great clinician, and Cushney, the equally distinguished pharmacologist. Every therapeutist who is not trained in the laboratory should have the help and advice of a pharmacologist, and every pharmacologist should have the opportunity of working with the human sick as well as with the experimentally diseased animal. The author urges that the pharmacologist and the therapeutist be brothers in fact and not in theory.

### ROSTER OF OFFICERS—1934

| | |
|---|---|
| Joseph Bixby, Geneva, President | 1934 |
| C. A. Selby, North Platte, President-elect | 1935 |
| George L. Pinney, Hastings | 1935 |
| William Shepherd, Rulo | 1935 |
| R. B. Adams, Lincoln, Secretary-Treasurer | 1936 |

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| A. P. Overgaard, Omaha, Secretary | 1936 |
| A. L. Cooper, Scottsbluff, Chairman | 1935 |
| W. R. Boyer, Pawnee City | 1936 |
| R. J. Lehnoff, Lincoln | 1936 |
| E. L. Brush, Norfolk | 1936 |
| Homer Davis, Genoa | 1934 |
| H. E. Potter, Fairbury | 1934 |
| D. D. King, York | 1934 |
| W. J. Douglas, Atkinson | 1934 |
| R. D. Bryson, Callaway | 1935 |
| L. W. Rork, Hastings | 1935 |
| O. R. Platt, North Platte | 1935 |

### DELEGATES TO THE A. M. A.

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|---|---|
| R. W. Fouts, Omaha | 1934 |
| B. F. Bailey, Lincoln | 1935 |

### DELEGATES TO COUNCIL ON MEDICAL EDUCATION OF THE A. M. A.

| | |
|---|---|
| J. S. Welch | Lincoln |

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| Morris Nielsen, Chairman Medical Section | Blair |
| J. D. McCarthy | Omaha |
| J. W. Duncan, Chairman Surgical Section | Omaha |
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| W. C. Harvey, Gering | 1937 |
| John Buis, Pender | 1936 |
| J. M. Willis, McCook | 1935 |

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| J. W. Duncan | Omaha |
| R. W. Fouts | Omaha |
| E. W. Rowe | Lincoln |
| L. F. Egan | Hastings |
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### JOURNAL AND PUBLICATION

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| F. W. Heagey | Omaha |
| John T. Myers | Omaha |
| J. S. Welch | Lincoln |
| C. W. M. Poynter | Omaha |

Report, Special Session, House of Delegates, A. M. A.

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## ANNUAL MEETING, OMAHA, MAY 14, 15, 16

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## *REPORT OF THE REFERENCE COMMITTEE, SPECIAL SESSION HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION*

*February 15 and 16, 1935*

*Your reference committee, believing that regmentation of the medical profession and lay conrol of medical practice will be fatal to medical rogress and inevitably lower the quality of medial service now available to the American peole, condemns unreservedly all propaganda, legisation or political manipulation leading to these nds.*

*Your reference committee has given careful onsideration to the record by the Board of rustees of the previous actions of this House f Delegates concerning sickness insurance and rganized medical care and to the account of the neasures taken by the Board of Trustees and the officials of the Association to present this point of view to the government and to the people.*

*The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and established on truly democratic principles, and this House of Delegates, as constituted, is the only body truly representative of the medical profession.*

*The House of Delegates commends the Board of Trustees and the officers of the Association* *for their efforts in presenting correctly, maintaining and promoting the policies and principles, heretofore established by this body.*

*The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness, the advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experence and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to which the American medical profession has fulfilled its obligations.*

*The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance whether administered by the Federal government, the governments of the individual states or by any individual industry, community or similar body. It reaffirms, also, its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.*

*The medical profession has given of its utmost to the American people, not only in this but in every previous emergency. It has never required compulsion but has always volunteered its services in anticipation of their need.*

*The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven principles which that Committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate, reliable and safe medical service established by the medical profession through years of experience in medical practice are found by the Committee to be essential to its own plans.*

*However, so many inconsistencies and incompatabilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.*

*The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplores and protests those sections of the Wagner Bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes.*

*The House of Delegates condemns as pernicious that section of the Wagner Bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training.*

*The so-called Epstein Bill, proposed by the American Association for Social Security now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure. An analysis of this proposed law has been published by the American Medical Association. It introduces such hazardous principles as multiple taxation, inordinate costs, extravagant administration and an inevitable trend toward social and financial bankruptcy.*

*The committee has studied this matter from a broad standpoint, considering many plans submitted by the Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure-all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical educational requirements. They must not destroy that initiative which is vital to the highest type of medical service.*

*In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, installment purchase or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.*

*Your Reference Committee Suggests that the Board of Trustees request the Bureau of Medical Economics to study further the plans now existing and such as may develop, with special reference to the way in which they meet the needs of their communities, to the costs of operation, to the quality of service rendered, the effects of such service on the medical profession, the applicability to rural, village, urban and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.*

*(Signed) Dr. Harry H. Wilson, Chairman, California.*
*Dr. Warren F. Draper, Virginia.*
*Dr. E. F. Cody, Massachusetts.*
*Dr. E. H. Carey, Texas.*
*Dr. N. B. Van Etten, New York.*
*Dr. F. S. Crockett, Indiana.*
*Dr. W. F. Braasch, Minnesota.*

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# COMPLICATIONS AND DISAPPOINTMENTS IN RADIUM THERAPY FOR CANCER OF THE UTERUS*

PALMER FINDLEY, M. D.,
Omaha, Nebraska.

Experts in the field of radiology need not be reminded of the manifold dangers and disappointments in the application of radium. They know full well that an agent so marvelously effective is capable of much harm and are conscious of their limitations in their endeavor to eradicate the disease without doing violence to normal structures. But what of the untrained and the inexperienced in whose hands is placed this two-edged sword?

George Gray Ward writes: "If radium is used, experience and a thorough understanding of the action of this powerful agent and a full appreciation of the complexities of its safe and efficient application is essential, otherwise we assume a grave responsibility in not giving these patients a chance for their lives." If the utmost good is to be accomplished there must be available the combined efforts of the clinician, the pathologist, the physicist, the radiologist, which is quite another thing from assuming the entire responsibility single-handed. An ample supply of radium and a patient are not enough. Says Edwin Ernest: "The proper training of the groups engaged in the treatment of cancer is far more important than an ample supply of radium improperly applied," and the late Dr. John Clark believed more harm has been done by inexperienced workers with radium than by surgery.

I take it to be the duty of experienced radiologists to apprise the beginners in radium therapy of the many pitfalls in the application of radium lest they go head-on into them, and this I infer is the real intent of the committee in presenting for discussion the subject of complications and disappointments in pelvic radium therapy.

Doctors who have never employed radium are being solicited by commercial organizations. I quote from a pamphlet from one such: "Think of the advantage you would enjoy by having the counsel and cooperation of a group of radium therapists when you have occasion to consider treatment for a malignant case—the value of having radium emination specially prepared for each case, so that its application could be carried out according to methods developed and sponsored by the world's ablest radium therapists—methods which you yourself can safely employ." Could anything be more misleading and vicious in its potentialities? Such treatment by remote control is not control. The availability of radium for those who know how to use it is greatly to be desired but for those who do not possess the requisite skill and experience it is to be deplored. I take it that this injunction applies with equal force to the hospitals that are placing radium at the disposal of all who hospitalize cases without requiring the supervision of a trained radiologist and pathologist.

The disappointments in radium therapy are in the main two-fold. There is disappointment in the large proportion of cases that present themselves in the advanced stages of the disease and there is disappointment in the results of under-irradiation, whereby the cancer cells become radio-resistant and the normal tissues become sensitized. Unfortunately we possess no certain means of determining in advance of treatment the degree of tissue reaction for as Bowing says: "It is clinically impossible to select patients who are decidedly sensitive in reaction from those in whom the response seems sluggish or retarted;" says Robert B. Greenough, "the surgeon may err in doing too much on the advanced cases and too little on the early and favorable cases."

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The ideal dosage is that which will effectively destroy all cancer cells without doing irreparable damage to normal tissues. The determination of the dosage is based upon the general condition of the patient, the type of cell, the condition of the organ affected and the neighboring organs, and finally upon the extent of the invasion. Schmitz has attempted to standardize the dosage and arbitrarily fixes the 100 per cent erythema dose as equivalent to 3200 milligram hours of radium for the embryonic cell types and for the adult squamous cell type, a 150 to 175 per cent erythema dose or 4800 to 5600 milligram hours of radium—this he believes to be the limit of resistance of normal tissues.

Recurrence of the growth in and near the seat of irradiation implies failure to give sufficient irradiation in the initial treatment. In support of this contention Healy found that 26.5 per cent of these recurrent lesions responded to radium treatment and hence had not been made radio-resistant in the initial treatment. Admitting the contention that such recurrent growths are usually associated with more remote invasions the results obtained by Ward, Taussig and others fully justify the cautious and timely application of radium to these recurring growths. Herein is the great value of the follow-up system. Ward reports nearly 50 per cent of re-irradiations in the New York Woman's Hospital with a cure-rate of 26.5 per cent in 170 re-irradiated cases in which the radium was applied to spots of persistent and recurrent carcinoma. He would limit his dosage to 300-1200 milligram hours with adequate screening; avoiding prolonged and massive doses. This is in line with the procedures of the Radium-hemmet in Stockholm, the Munich clinic and the Marie Curie Hospital of London. When the recurrent growths are found to be radio-resistant surgery should be invoked where possible. I have consistently pursued this practice and with results that are most gratifying.

If the disappointments in radium therapy are largely the result of under-irradiation, by the same token the dangers of radium therapy are due in large part to over-irradiation. Factors other than the amount of radium and the hours of its exposure enter into the picture of over-irradiation. Of perhaps equal, if not greater import, is the matter of distance and of screening and it is here that the experienced operator is able to forestall many a mishap that would befall the inexperienced. Only a hasty survey of the many complications following over-irradiation can be made in the time alloted me but it is hoped that it will serve to bring out a helpful discussion.

I am persuaded that the general condition of the individual is a most important consideration and one that is too often disregarded. The better the health of the individual the better the reaction to treatment. Poorly nourished, anaemic and cachectic patients as a rule suffer more from distressing initial symptoms, such as nausea, vomiting, headache and vertigo and the normal tissues are more disposed to break down under the influence of the rays. Furthermore the primary mortality is increased through toxic and septic absorption. A primary mortality above two per cent (as high as eight per cent has been reported) is accounted for by two factors, both largely preventable, i.e., general low body resistance and infection. It follows that a preparatory process of building up the resistance of the individual is of the utmost importance. Time will be well spent in enjoining rest, in directing the diet and if need be in correcting extreme anaemias by blood transfusion.

There are those who hold that all cases, however advanced, should be irradiated and justify their position by citing most unpromising cases that have responded to irradiation in an unexpected manner. As in surgery, so with radio therapy, though to a lesser degree, there are definite limitations beyond which we cannot go with safety. Professor Regaud would have us weigh the chances between possible improvement and aggravation of the existing condition, taking into the reckoning the general condition of the patient and the means at one's command. Assuredly massive doses are to be avoided in the presence of cachexia and emaciation.

Irradiation of an infected area is a positive danger and every means should be employed to rid the tissues of infection before applying radium. As a gynecologist I confess that I am unable to share in the jittery feelings of many radiologists who are so fearsome of the spread of infection by even the ordinary manipulations of the cancerous cervix. There are those who profess to see danger in digital examinations, in dilating the cervix and in diopsy in the application of the cautery and the curet. They prescribe vaginal douches, which is all very well for purposes of ordinary cleanliness but cannot possibly rid the cancerous mass of the infecting organisms. The high voltage pelvic roentgen-ray cycle best prepares the cervix for subsequent radium applications; with its judicious application the cancerous area becomes more circumscribed and the virulence of the infection is diminished. Unfortunately it is not always possible to detect latent pelvic infections, yet it is of the utmost importance to exclude the presence of pyometra, pelvic cellulitis and salpingitis before applying radium. Infected appendages should first be removed, the pent-up secretions of a pyometra must be released and a pelvic cellulitis calls for a preliminary rest period.

In reviewing the literature of the past five years I find that the mortality of radium therapy is directly chargeable to infection more than to all other factors combined. The mortality from sepsis (septacemia, peritonitis, septic pneumonia) varies from 0.5 to 2 per cent in the hands of experienced radiologists. Ward gives a mortality rate of 1.1 per cent in advanced cancer of the cervix in 558 cases. J. Ducuing had 1 per cent of general peritonitis, pyometra and fatal sepsis in 240 private cases of cancer of the cervix, while in 60 per cent there was some fever following irradiation. Five of the thirteen deaths in 427 cases of cancer of the cervix reported by Negre and Guilhem are due to sepsis; Petit-Dutaillis had a primary mortality of 7 per cent from sepsis in advanced cases where the cervix had not been amputated by electro coagulation, whereas there were no deaths in the group in which the cervix had been previously removed. Bowing emphasizes the advantage of having the patient in the knee-chest position under direct light. In this position the field of operation is cleansed and the radium applied with accuracy and with the minimum of manipulation. "The rule is," says Bowing, "that the necrosis subsides and the chance of hemorrhage passes away and the dangers associated with the infection is reduced."

Dr. Leda Stacy of the Rochester Clinic, warns against pursuing the radium treatment when septic symptoms arise in the course of treatment. "In this event the radium treatments are discontinued until the temperature has remained normal for several days and until all local evidence of reaction has subsided. If there is definite evidence of peritonitis, all food is withdrawn and the patient is given a normal salt and glucose solution by bowel and ice bags are applied to the abdomen. If the symptoms are less severe and there is apparently only a slight local reaction, forced fluids by mouth, basic diet and absolute rest in bed with ice to the abdomen usually clears up the symptoms. Preliminary treatment to clear up the infection in the cervix before inserting radium into the uterus usually prevents the occurrence of infection during the radium treatments." It is apparent that if we could do away with incidence of infection the mortality from radium therapy would be almost negligible.

That the incidence of infection is not always the result of trauma together with contamination from inadequate asepsis is evidenced by the occurrence of spreading infection following external roentgen irradiation, the contributing factor being the lowering of the tissue resistance in the presence of a latent localized infection.

"Many patients," says H. H. Bowing in a personal communication, "are seen very late in the disease when complications of various types are impending, such as fistulae, pelvic cellulitis, hemorrhage. . . . . . On careful analysis of these cases it is usually found that these complications were present and that the treatment had very little, if any, part in their precipitation. . . . . . About 150 cases of cancer of the cervix a year are irradiated in the Mayo Clinic and of this number about one to two per cent succumb and as a rule the patients that succumb are in the advanced phase of the disease. And further, they are usually the ones who have received benefit from the initial treatment, but the local recurrence is now responsible for their steady downward course and we have learned not to treat these recurring cases intensively."

The primary mortality in radium treatment of cancer of the cervix may be visualized in the following table:

Kessler-Schmidt, 256 cases with 17 deaths (6.6%).
Bowing, 178 cases with 1.51% mortality.
Ward, W. W., 558 cases with 1.1% mortality in all classes and 1.37% mortality in classes III and IV (436 cases).
Heyman, 1.59% mortality.
Keene, Floyd, 1:17% mortality.
Schroeder, R., 256 cases with 14 deaths (5.5%).
Healy, W. P., approximately 1%.
Ducuing, J., 240 cases with 3% deaths.
Negre & Guilhem, 427 cases with 13 deaths (3.04%).

Karl H. Martzloff says: "There are numerous pitfalls for the experienced as well as the inexperienced in the use of radium. They apply whether radium is used as a surgical adjunct or as the sole method of treatment. We may only emphasize here a few of the important considerations that confront the individual who employs both surgical and radiological methods, and is, therefore, probably not so well versed in the use of radium. Radium treatment of advanced, markedly infected cervical cancer is complicated by an appreciable morbidity and a mortality considerably higher than one would infer from the mortality statistics for radiation therapy. Therefore, the generally accepted mortality rate of 2 or 3 per cent for patients treated by radium only reflects the lethal rate for a whole group of operable, borderline and inoperable patients. It does not indicate that the mortality from radiation of operable and borderline cases is slight while the advanced inoperable cases may yield a primary death rate of 6 per cent or better as reported by Clauberg and others."

While necrosis is usually the result of over-irradiation we have not reached that degree of perfection in technic that will wholly eliminate its occurrence. Re-irradiation is responsible for perhaps the major proportion of instances and massive doses more than smaller, divided doses. In cancer of the cervix I think it only fair to hold radium responsible for vaginal fistulae occurring within three or four months of its application. All fistulae arising at a later date may be assumed to be due to malignant invasion and disintegration. Dr. F. R. Smith, of the New York Woman's Hospital, concludes that the type of therapy is the determining factor and bases his belief on a review of 2,852 cases of cancer of the cervix. He finds vaginal fistulae more frequent following interstitial irradiation, where massive doses are given, where the tissues are infected and after supravaginal or total hysterectomy. In his series recto-vaginal fistulae occurred once in 75 cases, vesico-vaginal fistula once in 92 cases and combined fistulae once in 129 cases. Smith is of the opinion that a preliminary high voltage x-ray cycle will diminish the size of the growth, eliminate infection and thereby decrease the incidence of fistulae. Important as these considerations are we will fall short of obtaining the maximum of security if we fail in the selection of proper containers for the filtering of rays, if we do not judge wisely the amount of radium element and the time of exposure. Effective packing of the vagina and a retention catheter in the bladder will go far to safeguard the bladder and rectum from injury. Bowing says: "It is possible to treat cancer of the cervix so as to cause a complete but sufficiently slow disintegration of the malignant process that the normal tissues are filled in and thus prevent potential rectovaginal fistulae as well as vesico-vaginal fistulae."

In a personal communication Dr. H. S. Crossen reports 118 radium treated cancers of the cervix with one vesico-vaginal fistula and three rectovaginal fistulae, one of which developed late and was due to malignant invasion. In this series intensive irradiation was applied. Crossen accounts for this excellent showing by the care exercised in the study of conditions within the pelvis and the adaptation of the radium implantation so as to give the maximum dosage within the margin of safety.

In all fairness to radium therapy we find more vaginal fistulae in untreated cases. Taussig finds five times as many recto-vaginal and vesico-vaginal fistulae in untreated cases as in the irradiated group.

The problem that is yet unsolved is to apply a lethal dose without injury to normal structures and the solution of this problem now seems to rest in more extensive employment of external irradiation. This Professor Regaud has definitely demonstrated in his incomparable results in the irradiation of cancer of the cervix. We are not content, says Healy, with 55-60 per cent of results in early cancer of the cervix—the difficulty is in applying lethal doses to the lymph nodes and parametrium without damaging the intervening normal structures. To avoid destruction of normal tissues, where the growth fails to respond to irradiation, Healy would perform hysterectomy when conditions permit. By so doing extensive necrosis will be avoided, hemorrhages and disagreeable discharges will be checked.

I have found it extremely difficult to determine the incidence of vaginal fistulae as reported by various authorities in the literature. Without knowing the extent of the invasion, and the time of occurrence of the fistula in respect to the application of the radium it is not possible to separate those fistulae due to radium and those due to extension of the growth. For example, Gilbert Strachen reports 22 fistulae in 254 cases or 8.7 per cent as compared with 6 fistulae in 449 cases or 1.83 per cent reported by C. Schroeder. The discrepancy in the results of these two authorities is very great but without knowledge of all details of technic employed, without segregating them in various groups and without knowing the time of appearance of the fistulae in respect to the application of the radium no conclusions can be drawn.

I am indebted to Dr. Frank Lynch of the University of California for the following records from his cancer clinic:

| | |
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| Total number of cases | 424 |
| Known number of fistulae | 56 |
| Suspected from correspondence | 5 |

Of the 61 known and suspected fistulae:

10 were present before treated.
29 were known to be due to extension of the disease.
5 were suspected to be due to the extension of the disease.
17 were due to the radium.

Of the 17 cases chargeable to radium:

1 was undoubtedly due to radium.
14 were most probably due to radium.
2 were probably due to radium.
1 was in Group II (Schmidt).
5 were in Group III (Schmidt).
1 was in Group IV (Schmidt).
7 were in Group V (Schmidt).
6 were recurrences following panhysterectomy.
1 was a recurrence following amputation of cervix.
All 16 cases would prabably have developed fistulae without radium.

In 289 irradiated cancers of the cervix I have had two vesico-vaginal and one recto-vaginal fistulae directly chargeable to radium. All three were in Group III (Schmidt). One vesico-vaginal fistula healed spontaneously. I have had no fistulae in the past four years due. I think, to more careful screening. Dr. Floyd Keene writes that in the University of Pennsylvania clinic, out of 684 cases, they have had 44 vaginal fistulae; 19 of this number were chargeable to radium. Only four fistulae developed in the past five years due unquestionably to modifications in technic in this period.

So far we have considered complications which follow closely upon the application of radium but there are remote consequences which are no less serious. It requires a nicety of technic to regulate the dosage and the screening to obtain the required destructive effect upon the cancer cells without doing violence to normal tissues. Not only would we avoid extensive sloughing, septic absorption and hemorrhage but the building up of an excessive amount of connective tissue which leads to all manner of disturbances following prolonged and repeated exposure to the rays. These "late reactions" are not experienced for several months and even later, and may be misinterpreted. The pain, the ulcerations and the discharges are often thought to be due to a recurrence of the malignancy.

H. Eymer calls attention to an infiltration of the parametrium following closely upon intensive irradiation that may obstruct the ureter, but the obstruction is usually temporary and does not call for ureteral catherization. This zone of infiltration in the parametrium may persist and be mistaken for cancerous infiltration. Where a similar process extends to the bladder and rectum we have what is clinically designated as acute cystitis and proctitis. Experience has shown that interstitial irradiation brings about these changes more often and to a greater degree than does surface irradiation.

We are all familiar with the early bladder and rectal disturbances which last from a day to two weeks but it is the appearance of late lesions in the bladder and rectum that often lead to confusion. Too often these late reactions are interpreted as malignant invasions which call for further irradiation. No such conclusion should be reached without a biopsy. Resort to irradiation would only serve to aggravate the condition, and lead to the deepening of ulcers, to possible hemorrhages and to subsequent cicatrization.

In late reactions in the rectum and sigmoid one sees oedema and congestion of the mucosa together with a fibrino-plastic exudate with possible multiple ulcers. These ulcers may lead to profound anaemia from continued leakage of blood. Ultimately there may be constriction of the lumen of the gut, even to complete obliteration. All this is most distressing and we are not to add insult to injury by hastily concluding that the rectal disturbances are due to malignant invasion and on this hypothesis proceed to further irradiation. Here, as in the bladder, a biopsy should be made before deciding upon any therapeutic program other than palliative measures.

In cancer of the cervix following upon supravaginal hysterectomy, and in all cervical cancers associated with pelvic adhesions, there is the possible danger of doing violence to an adhered loop of bowel. This calls for guarded dosage.

Cancer of the cervix, untreated, leads almost invariably to definite lesions of the urinary tract. These lesions are the results of ascending infection, of compression of the ureters by connective tissue formation in the parametrium, the encroachment of the malignant mass upon the ureters and finally the direct invasion of the bladder and ureters by the cancer. The introduction of radium therapy has added measurebly to these urinary lesions, due to the spread of infection and to the late formation of connective tissue in the parametrium, causing constriction and even complete obstruction of the ureters.

A. L. Reed estimates the frequency of bladder lesions to be about 2 per cent of all irradiated cases. This does not include the commonly observed irradiation erythema arising within 48 hours of irradiation in which there is temporary oedema and vascularization of the base of the bladder. This is a transitory and self limiting condition that rarely persists beyond two weeks and yields readily to palliative treatment. The symptoms of painful and frequent urination, sometimes bleeding, are greatly augmented where there has been a pre-existing cystitis. A history of bladder disturbance should always call for a cystoscopic examination before proceeding with irradiation and in event of the finding of a cystitis steps should be taken to relieve the bladder irritability before applying radium. Where there is suspicion of cancer a biopsy should be made and if cancer of the bladder is present radium should be withheld and in its stead the high voltage x-ray pelvic cycle should be used. To proceed with radium would be to invite aggravation of bladder symptoms and possible fistula formation. Henry Schmitz calls forcibly to our attention the late reactions within the bladder wall to radium irradiation. Fibrosis and endarteritis obliterans leads to ulcer formation which develop insidiously and are most distressing; the bladder mucosa is white and glistening, the base of the bladder loses its elasticity and becomes fixed, small indulent ulcers covered with urinary salts appear which slowly widen and deepen and may terminate in vesico-vaginal fistulae. Too often these lesions are assumed to be malignant and resort is had to re-irradiation which only serves to aggravate the condition.

Partial and complete obstruction of the ureter often escapes recognition as do the resulting lesions—hydroureter, hydronephrosis, pyelitis and pyonephrosis. Martin and Robers calls attention to the dangers of inserting needles in close proximity to the ureters because of the resulting fibrosis which in turn may constrict the ureter.

To reduce the incidence of urinary complications there must be preliminary treatment of preexisting urinary infections; a cystoscopic examination should preceed the application of radium where there is a suspicion of infection, and the insertion of a retention catheter together with firm packing of the vagina will do much to protect the bladder from the radium rays.

Pyometra, once considered a rare lesion, is now placed among the major end results of radium therapy. In 1852 irradiated cancers of the cervix collected from the literature (Ducuing, Begouin, Guilhem-Gonzy, Norris) pyometra occurred in approximately one per cent of all irradiated cases. The high percentages (8-10 per cent, reported by some authorities), are probably accounted for by the inclusion of cases associated with foul discharge and classified as incomplete pyometra in contra-distinction to the complete type which has no accompanying vaginal discharge. With the destruction of the gland structures of the cervix, leaving the endometrial glands intact, we can readily understand how the subsequent contraction of the cervix, incident to post-irradiation fibrosis, may obstruct the outflow of the secretions from the body of the uterus. Brooke Bland has observed a case in which the pent-up secretions distended the uterus to the size of a five months pregnancy. In these secretions we find the colon bacilli, staphylococci, streptococci and anaerobic organisms. As a rule the streptococci are seldom hemolytic and are rarely of a virulent type. More often pyometra develops in recurrent malignancy.

It is unlikely that the uterus could distend without pre-existing myometrial degeneration. With the loss of contractibility of the uterine musculature the secretions are not forced through the contracted cervix and so accumulate within the cavity of the uterus. It is seldom that pyometra develops short of several months following irradiation. Re-irradiation of the cervix in the presence of pyometra is dangerous. The consequences may be the development of phlebitis, pelvic cellulitis, peritonitis, pyosalpinx, septicemia, septico-pyemia and death.

There would seem little excuse for failing to recognize pyometra. The simple procedure of dilatation of the cervix will suffice to disclose the condition and to interdict the application of radium. Pyometra is not always preventable but certain precautionary measures are recommended. The disinfection of the cervix before inserting the radium and the periodic passage of a sound in the months following irradiation are worthwhile precautions. Where the cervix is completely obstructed and cannot be opened a hysterectomy should be considered. But because of associated inflammatory lesions the operation may be fraught with grave danger.

All will agree that cancer of the body of the uterus is a surgical lesion. Graves warned of the false sense of security in the effects of irradiation in this class of cases, due to the temporary arrest of the hemorrhages and the general improvement while the disease is progressing. These cases are usually of the adeno-carcinomatous type which are radio-resistant to a high degree. Graves would hysterectomize these cases even at great risk. On the other hand Healy, in reporting 134 cancers of the body of the uterus, has had no primary mortality in the irradiated inoperable cases; this in contrast to a 3 per cent primary mortality in Döderlein's group. Heyman reported 45.7 per cent of five year cures in all cases and 60 per cent in the operable group. Voltz reports 60 per cent of five year cures and Pfahler believes that 62 per cent of all cancers of the body of the uterus can be cured by skillful irradiation and adds that "when and where expert radiological service is available in which both radium and high voltage x-rays are used, a higher percentage of cures can be obtained by irradiation and with less risk, than if treated by surgery."

All complications common to cancer of the cervix are less frequently encountered in radium treated cancers of the body of the uterus except pyometra. It is noteworthy that Heyman reports 60 per cent of five year cures from radium in cancer of the body occurring in several clinics, a record comparable to surgical therapy. May it not be anticipated that with improved technic and a more judicious selection of cases, cancer of the body of the uterus, as with cancer of the cervix, will be more and more subjected to irradiation rather than to surgery?

### CONCLUSIONS

1. The availability of radium for those who know how to use it is to be desired but for those who do not possess the requisite skill it is to be deplored.

2. The disappointments in radium therapy are in the main two-fold: the large proportion of cases presenting themselves in the advanced stages of the disease and the failures due to under-irradiation.

3. "The surgeon may err in doing too much on the advanced cases and too little on the early and favorable cases."

4. Recurrence of the growth in and near the seat of irradiation implies failure to give sufficient irradiation in the initial treatment. A careful, persistent follow-up system with re-irradiation of recurrent growths that show response to the rays will greatly enhance the chances of cure.

5. The dangers of radium therapy are largely the result of over-irradiation. Proper regard for distance and screening will forestall many a mishap.

6. Too little attention is paid to the general condition of the patient. Emaciation, cachexia and anaemia tend to multiply and aggravate complications.

7. The mortality of irradiation therapy is largely chargeable to infection, either introduced at the time of irradiation or as is more often the case, to the awakening and spread of a pre-existing pelvic infection.

8. Necrosis of normal structures is not always avoidable but has been greatly lessened by the giving of less massive doses, more careful screening and the preliminary use of the high voltage x-ray pelvic cycle.

9. The problem that remains to be solved is to apply a lethal dose without injury to normal structures and the solution of this problem now seems to rest in more extensive employment of external irradiation.

10. Prolonged and repeated exposure to the radium rays tends to build connective tissue and give rise to distressing complications that are too often interpreted as a recurrence of the malignancy. These "late reactions" are found notably in the parametrium, bladder, ureter and rectum.

11. Cancer of the body of the uterus, long recognized as strictly a surgical lesion is being irradiated with gratifying results.

(Literature in Reprints).

# PRIMARY HYPOCHROMIC ANEMIA*

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During the past five years, there has appeared in the medical literature, a new blood dyscrasia most commonly entitled primary, or idiopathic, hypochromic anemia. Although Faber as far back as 1909 first noted the association of anemia and achlorhydria, it was not until 1929 that from the great class of secondary anemias, primary hypochromic anemia first appeared as a clinical entity. It is not an uncommon condition as Wintrobe and Beebe$^{(1)}$ at the Johns Hopkins Hospital found, in reviewing the literature, 493 reported cases and described observations on an additional twenty-five cases of their own. They define the condition as "an anemia of unknown etiology occurring especially, but not exclusively, in women in the third to fifth decades of life and one which is characterized by an insidious onset, long duration, symptoms such as are common to all anemias and, in addition, glossitis, stomatitis, dysphagia, paresthesias without objective neurologic findings, and often splenomegaly and koilonychia. In the majority of cases there is evidence of disturbed gastric secretion (achlorhydria). The anemia is characterized by microcytosis and hypochromia, readily responds to adequate iron therapy and, very frequently, by a tendency to relapse when treatment is discontinued."

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### ETIOLOGY

One of the outstanding features of the disease is its almost sole occurrence in women (96%) that are between 30 and 50 years of age. The onset of this type of anemia is rare after the menopause. Witts(2) is impressed by the resemblance of some of the patients to the type so frequently encountered in pernicious anemia, that is, light colored eyes set widely apart, prematurely grey hair, and a wide costal margin. A positive family history of "anemia" is not unusual. It seems to be more common in the lower classes of society, probably as a result of a poorly balanced, inadequate diet. A number of authors(1)(3)(4) have suggested that a gastric defect is present that interferes with the normal digestion of iron-containing foods with a resultant chronic iron deficiency. However, this has yet to be definitely proved. Whatever the fundamental defect may be, it is evident that the anemia may be accentuated by such associated conditions as chronic blood loss, an infection, an operation, or, as in 7% of Wintrobe's patients, the symptoms were definitely related to pregnancy.

### SYMPTOMATOLOGY

The onset is insidious. The average duration of symptoms is about ten years. A great majority of the cases present symptoms that are directly related to the anemia, that is, generalized weakness, dizziness, dyspnoea, palpitation, and choking sensations. In about 50% of the cases, the symptoms are referred to the gastro-intestinal tract and includes anorexia, flatulence, abdominal pain or distress, constipation, or, less commonly, a diarrhoea which is usually attributed the achlorhydria. The gastro-intestinal symptoms usually cause the patient to further restrict his diet which may lead to an increase in the degree of anemia. Glossitis and stomatitis of a moderate severity are present in about a fourth of the cases. Dysphagia is common and may be the chief complaint. At present it is of general opinion that the majority of the cases of the Plummer-Vinson syndrome (glossitis, dysphagia and anemia) are indistinguishable from primary hypochromic anemia. Menorrhagia may play a predominate role of the symptom-complex, although a pelvic examination usually discloses no organic cause to account for it. It is important to note that the menorrhagia usually begins after the onset of the symptoms of anemia, and often promptly disappears upon the institution of iron therapy and the return of the blood to normal limits. It is generally believed that the menorrhagia plays no part in the etiology of this type of anemia. Irregularity of the menstrual periods and amenorrhoea are less common complaints. Mild paresthesias of the extremities occurs in about 15% of the cases, but true neurological changes are very rare.

### PHYSICAL SIGNS

The patients, upon examination, often have a characteristic appearance which Wintrobe(1) describes as follows: "They do not look acutely ill, but appear tired and lifeless, and resigned to a state of chronic invalidism. Their fatigued, listless expression is characteristic." The waxy, alabastine pallor is striking. Less commonly, they present the yellowish pallor of pernicious anemia. The skin may be wrinkled to an unusual degree. In about half of the cases, the finger nails show a remarkable and characteristic spoon-shaped appearance (koilonychia), and they are quite brittle. If the anemia is severe, the heart may be slightly enlarged and hemic murmurs may be present. The splenic tip is palpable in about half of the cases, a moderate enlargement of the liver is found in about a third of the cases.

### LABORATORY

It is not necessary to have an achlorhydria to make the diagnosis of primary hypochromic anemia. About 85% of the reported cases present an achlorhydria in using the Ewald test meal, and 60% in spite of histamine stimulation. It is interesting to note that Davies(3)(5) found in examining the gastric secretion of these patients, that they show an excess secretion of mucus and a decreased secretion of pepsin in contrast to cases of pernicious anemia whose gastric secretion usually shows no mucus and a diminution or total absence of pepsin secretion. Castle and his associates(6) have shown that the "intrinsic" gastric factor of pernicious anemia is present in this type of anemia.

The blood picture presents the following important and characteristic features: A marked reduction of hemoglobin (average 40 to 50%) with little or no decrease in the number of red blood cells (average 3 to 5 million), thus giving a low color index. On examining the blood smear, stained by Wright's method, the majority of the erythrocytes appear reduced in size (microcytosis) and contain less than the normal amounts of hemoglobin. The anisocytosis and hypochromia vary with the degree of anemia. A diagnosis may be made from the distinctive blood smear, and definitely checked by means of a hemocytometer to determine the exact amount of reduction of the mean corpuscular volume and mean corpuscular hemoglobin content of the red cells. The reticulocytes are present in normal numbers. There may be a normal white blood cell count, or a leucopenia (4 to 6,000), with a normal differential percentage. The number of platelets are normal or very slightly reduced. The icterus index of the blood is not increased, and urobilin is present in normal amounts in the urine.

### PATHOLOGY

Very little is known concerning the state of the bone marrow in primary hypochromic anemia. Dameshek(4) in reporting his observations on biopsies of the sternal bone, states that even in the presence of marked anemia, there is marked hyperplasia of the red cell forming elements, and that the hyperplasia is of the normal nucleated red cells (erythroblasts and normoblasts) and not of the primitive or embryonic megaloblasts seen in pernicious anemia.

### DIAGNOSIS

The characteristic symptoms and signs, plus the distinctive findings of hypochromia and microcytosis in the blood study, with or without achlorhydria, is sufficient to make the diagnosis of primary hypochromic anemia. The differential diagnosis must exclude pernicious anemia, myxedema, anemias due to dibothrocephalus latus infestation, and anemias secondary to chronic blood loss, infections, etc. Primary hypochromic anemia has many features in common with pernicious anemia among which are the long history of weakness and fatigue, vague gastro-intestinal symptoms, sore tongue, paresthesias, achlorhydria, and an anemia; and too, they both occur in the same age groups. An error in diagnosis is easy if primary hypochromic anemia is not kept in mind. Dameshek(4) points out that failure of certain cases of "pernicious anemia" to respond to liver therapy possibly has been due to a mistaken diagnosis, primary hypochromic anemia being in reality present. Minot(7) and others(8)(9) have noted the rare transition, over a period of years, of primary hypochromic anemia to a clear cut case of pernicious anemia. Minot(7) also cautions about distinguishing hypochromic anemia from the so-called splenic anemia, or Banti's disease, as he has recently seen a case in which splenectomy was performed. Though still a moot point, it is generally believed that chlorosis, as seen some forty years ago, is to be differentiated from primary hypochromic anemia. It is true that the blood findings are identical and that they both respond to iron medication, but chlorosis was peculiar to young girls and was rarely found after the age of thirty, it was not associated with glossitis, or paresthesias, and was associated with a hyperchlorhydria and not achlorhydria. Many patients with hypochromic anemia may, for years, be falsely labeled "neurasthenic" until the correct diagnosis is made and proper therapy instituted.

### TREATMENT

If adequate amounts of iron are used over a continuous period of months, the results of treatment are striking. Usually within a week, the patients begin to improve as evidenced by a gain in strength and appetite, disappearance of the pallor and vague gastro-intestinal and neurological complaints. Changes can be noted in the tongue such as regeneration of the papillae and disappearance of the glossitis. The nails become normally shaped and less brittle, the liver and spleen recede in size, and the menorrhagia, if present, may cease. The influence of therapy on the blood is first noted by a rise of the reticulocytes, reaching its maximum height from the 5th to the 10th day. This reticulocyte response is not usually as high as that seen in pernicious anemia under liver therapy. The hemoglobin rapidly rises during the first few weeks of treatment, averaging about 0.8% to 1.5% per day, depending upon the initial level of the hemoglobin. The increase in the number of erythrocytes is not as striking but may, temporarily, reach as high as six million cells per cu. m.m. There is a gradual diminution of the achromia and a decrease of the poikilocytosis and aniscytosis. Usually after some 60 days of iron medication, the blood findings are within normal limits. However, relapses are prompt and characteristic with cessation of therapy or inadequate doses of iron.

Dameshek(10) in comparing the different compounds of iron in 65 cases of primary hypochromic anemia, concludes that in order to obtain maximal effects, it is necessary to give massive doses of the drug, averaging 1000 mgms. daily of available iron. Probably a good share of the iron taken by mouth is not absorbed, and Heath(11) has recently shown that this is especially true in the latter period of treatment. Clinically, however, the following dosages of iron compounds are used successfully: Ferric ammonium citrate, four to eight grams daily, administered in milk and taken by means of a straw or glass tube to prevent staining the teeth; Blaud's pills (ferrous carbonate), freshly prepared, three to four grams daily; and reduced iron, administered three times a day in 1.0 gram capsules. Recently, Fullerton(12) studied the results of treating 21 cases of hypochromic anemia with ferrous sulphate, and he states that in daily doses of 0.6 to 0.8 grams, it is cheap and very efficient. At times, patients taking the iron and ammonium citrate preparation may be disturbed by the onset of nausea, vomiting, diarrhoea, and cramping abdominal pains. In such cases, it is advantageous to give iron in the reduced form. After the blood has reached and remained within normal limits for several weeks, a slightly less amount of iron may be given as a maintenance dose. Parenteral injection of iron has not, as yet, proven of any value. Liver extract is considered to be without effect in the treatment of primary hypochromic anemia.

In spite of adequate iron therapy, about 25% of the cases fail to reach or maintain a normal hemoglobin level. In a recent publication, Patek and Minot(13) suggest the possibility of administering bile pigment to determine its hemopoietic effect. This was done in nine selected cases of hypochromic anemia with convincing results. They conclude that the bile pigment in some unknown manner facilitates either iron absorption or utilization and assists in hemoglobin formation. In these resistant cases, Dameshek(4) favors the addition of small amounts of copper sulphate, 5 mgms. three times a day, but Wintrobe(1) has not observed any beneficial effects from the copper. Transfusions are only necessary in emergencies. A diet high in iron content is a helpful adjunct. Dilute hydrochloric acid is given in the usual doses, often improving some of the gastrointestinal symptoms. However, it may serve only to aggravate an existing glossitis.

## CONCLUSIONS

In conclusion, it may be said that in primary hypochromic anemia, we are dealing with a definite clinical syndrome, the salient features of which are: An anemia of the hypochromic, microcytic type, with or without an achlorhydria, occurring chiefly in women in the middle age, and characterized by chronicity of symptoms, glossitis, dysphagia, mild paresthesias, and splenomegaly. Though the etiology is as yet unknown, it appears to be due to a hypoferrism, probably based on a defective gastro-intestinal function.

Adequate doses of iron over a period of months is the treatment par excellence.

It is desirable to call to the attention of physicians the importance of recognizing such cases, and the splendid and gratifying results of its treatment.

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# THE CONDUCT OF NORMAL LABOR*

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In discussing the conduct of normal labor, it is assumed that all the requirements of the "Standards of Prenatal Care" have been fulfilled.

A discussion of normal labor should begin with a definition. DeLee's definition follows in words to the effect that "Normal labor is one, in which interference is unnecessary, the mother expels the infant and secundines unaided, and both she and the child live." This definition is exceedingly broad. It is well known that some physical damage, however slight, is incurred during labor by the mother, so that she cannot possibly return to her preconceptional condition and that the child has to suffer a certain minimum amount of trauma during delivery. So, in order to have a definite basis for discussion, we might extend DeLee's definition a trifle and say, that in order to have a normal labor, the mother must deliver herself without operative intervention in a reasonable length of time, with only slight injury to the parturient canal, that she must remain healthy during and after the lying-in period, and that the infant should be capable of normal extra-uterine life.

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It might be well to refresh our memories on another definition. We all know that the word "obstetrics" comes from the Latin verb "obstare" which means "to stand before" and by extension of that meaning "to protect." Certainly when we aim to protect someone, we intend to do him no harm. In all the birth-rooms of the Chicago Lying-in Hospital, there are prominently displayed two bronze tablets, on which are inscribed "primum nil nocete" (first of all do no harm) and "Non vi sed arte" (not by force but by art). These phrases should be graven on the memory of every one of us, who has a conscience. Therefore in order to live up to the spirit of these phrases as fully as possible (and no one can deny that we ought to try), there are certain bare essentials that must not be neglected in the conduct of normal labor. If any one of these requirements is neglected, great harm may be done to the mother or child or both. These requirements are the absolute minimum and it is not impossible to meet them under any circumstances. They are as follows:

### DIAGNOSIS

As soon as possible after arrival at the patient's bedside, the presentation and position of the fetus should be checked to insure that there is no mal-presentation. As for the pelvis, its adequacy for the passage of the fetus should have been considered before active labor sets in. Patients should be trained to have the proper examinations made during pregnancy, yet in an occasional case, one must make the pelvic measurements and estimation during labor. The abdominal examination will yield the necessary information as to presentation and position, while the state of the cervix and the progress of the presenting part through the parturient canal can be watched chiefly by rectal palpation. Along with the abdominal examination, the fetal heart tones should be checked every hour during the first stage and every fifteen minutes during the second. This can be done with any one of the usual stethoscopes, but a head stethoscope is much more satisfactory and easier to use when scrubbed up.

### PREVENTION OF INFECTION

Infection of the pueperal genital tract is to be prevented in as far as is humanly possible. Pathogenic organisms may be and usually are present in the patient's own body, in the genital tract or elsewhere, and may reach the uterus before, during, or after labor by the blood stream or lymphatics or by continuity of tissue. They can also be introduced from without by the physician or other attendant in various ways.

The physician's hands and instruments are the principal agents by which he may communicate infection to his obstetrical patient. It is therefore urgently necessary for anyone, who practices obstetrics, to be meticulous in the care of his hands. He should leave automobile repairs, garden fertilizing and the like to others, who do not follow obstetrics as an avocation.

Of course, it is impossible for anyone, who is engaged in general practice to avoid contact with communicable diseases, but it is not impossible to prevent in a great measure the transfer of contagion to other patients, and particularly to puerperal women. This may be done by limiting contacts with contagious patients to those absolutely necessary, the wearing of masks and gowns or other protective garments during the examination of the patient, by scrubbing (not merely rinsing) the hands afterwards, followed by the liberal use of effective antiseptics on them. Rubber gloves without holes, and instruments, as far as possible, should always be used in the handling of surgical infections and the like, and contact with them should be limited to the minimum.

If the physician himself is suffering from a boil, infected finger or anything else that is a source of danger to his obstetrical patients, he should refrain from participating in their labors. It would seem unnecessary to refer to such an obvious surgical principle, yet breaches of this principle are not at all uncommon.

Before the physician comes in contact with the parturient, he should scrub his hands with brush, soap and water and clean his fingernails. He should so train himself to this practice, that it should be his first reaction before coming in contact with a woman in labor.

Endogenous infections include those. that may be present in the genital glands (vulvo-vaginal, urethral and cervical—latent gonorrhea particularly), salpingitis and other infections in the pelvis proper, contiguous diseases, such as may be found in the appendix, urinary tract or in the form of a skin disease. The patient's own nose and throat may be a source of danger to her. An effort should be made to eradicate any focus of infection in the body or to render it as innocuous as possible. During labor, the vulvar area should be shaved, thoroughly scrubbed and sponged or painted with suitable antiseptic solutions and some such antiseptic as acriflavine 1-300 in glycerine 8-10 ccm. should be instilled in the vagina at intervals of three to four hours during labor.

Vaginal examinations should be few and far between, if resorted to at all, when there is a serious and conscientious attempt being made at asepsis. It is far better to watch the progress of labor by abdominal palpation and by rectal examinations. I say this, advisedly, for I have heard all the arguments advanced against the use of rectal examinations and I am thoroughly convinced that most of the fine fervor against the use of rectal examinations comes from a lack of appreciation of their inherent advantages and quite often also from the disinclination the old dog has for learning new tricks. This method of palpation will yield all the information necessary for the conduct of labor in 90% of the cases and when it does not, a vaginal examination may readily be done. When vaginal examinations are made, scrupulous attention must be paid to the rules of asepsis.

Every effort should be made to reduce trauma to an absolute minimum, during the actual delivery, as every injury and wound in the genital tract lowers the patient's local resistance and makes a new portal of entry for pathogenic organisms. As an example of a common and pernicious practice, with no conscientious and informed practitioner should use. might be cited manual dilatation (laceration) of the cervix for the purpose of shortening the first stage.

Again, care should be taken to prevent the transfer of virulent organisms by droplets or in any other manner from the nose and throat of the physician, patient or attendant to the patient's genitals. A mask should be worn over the mouth and nose, even though one may not place a great deal of trust in the efficacy of gauze masks as a preventive measure unless some impervious material is placed between the layers.

The genitals should be covered between examinations and up to the time of delivery with a sterile pad. Shaving the vulvar hair is not absolutely necessary in all deliveries, but it makes the after-care of the genitals much more effective and more easily carried out.

Finally, it is just as important to be a stickler for the rules of asepsis and antisepsis during the third stage of labor, as it is during the first and second stages.

### MORAL AND PHYSICAL SUPPORT OF THE PATIENT

One does not need much experience with pregnant women to realize that, long before labor starts, many of them, especially primiparae, are in a state of nervous apprehension, due to fear of pain and often also to worry as to the outcome of the labor. Surely, they cannot be blamed for this, since none of us would approach six to eighteen hours of intermittent, and sometimes racking, pain with anything like equanimity, particularly when such an ordeal carries a definite risk of danger to life with it. I firmly believe that it is the duty of the physician to relieve his patient's suffering as much as possible, depending upon circumstances always provided that the method of analgesia does not endanger the mother or baby. The day is certainly past when a few whiffs of ether or chloroform during the perineal stage can be regarded as adequate for the relief of pain. Because our mothers may have been stoics through necessity is not a valid argument for the continuation of such a custom. Each physician should make himself familiar with some safe method of analgesia and make it available to the woman in labor.

### THE MINIMIZING OF PHYSICAL DAMAGE TO MOTHER AND CHILD

The principal sites of maternal injury are the corpus uteri, cervix, vaginal walls, pelvic floor and perineum, while the most common cause of mortality or morbidity on the part of the baby, is to be found in intracranial hemorrhage. Ordinarily, when one tries to prevent damage to the mother in the areas cited by well recognized methods, fortunately the baby is also safeguarded from its most frequent danger.

First of all, extract of the posterior pituitary lobe (pitocin, infundin, thymophysin, whatever the name may be or the form in which it may be used) should never be resorted to during the first stage of labor to hasten dilatation. It is sufficient to say here, that it is a potential menace to the two lives under the physician's care and that there are other safe and effective means, which may be used. Likewise, and for the same reasons, pituitary extract should not be used during the second stage (after full dilatation) before the engagement of the head has taken place and before the head is on the perineum. When one takes advantage of the action of post-pituitary extract during labor, it is imperative that at least the same conditions be met as for the application of forceps.

It is no secret that waiting for a "case" to deliver is irksome, and especially so sometimes during the first stage. One is sorely tempted, often at 4:00 a. m., to employ various procedures to shorten this stage. Some men use pituitary extract, which is exceedingly unsafe in such a situation, while others try manual dilatation, which is sure to result in abrasion, contusion or laceration of the cervix, depending upon how early in the first stage it is employed. Another practice urging the patient to pull on straps and to bear down during the stage of dilatation, which is also to be condemned, if only because of the injury to bladder supports.

The pelvic floor and perineum should usually be ironed out to prevent a prolonged perineal stage and as a preparation for episiotomy, when it is indicated. This may best be accomplished with the acriflavine-glycerine solution as a lubricant. One, or two fingers as the case may be, is inserted into the vaginal orifice, pulling the perineum and pelvic floor downward and forward, and gradually stretching the vaginal outlet until the remaining fingers can be inserted in turn until the vulvar opening will permit the closed fist to be withdrawn easily. Dilatation of the vaginal orifice by a boring motion of the whole hand will usually result in laceration in the region of the clitoris and urethra. The indication for episiotomy will depend upon the experience of the operator, but the decision may be based upon the difficulty with which the perineum is ironed out and the probability of the vaginal opening allowing the fetal head and shoulders to pass through it without laceration. After the baby is properly disposed of (respiration established—warmly wrapped, when necessary), fresh gloves should be put on, the vulvar area cleaned up again as for delivery and a search made for possible lacerations. This search should not be terminated with the finding of lacerations obvious to a cursory inspection, but the labia should be widely separated, and the whole vulva and vaginal orifice gone over, until it is certain that all possible lacerations are found. An adequate repair should then be done. If an episiotomy has been done, it should also be properly sutured. Repair before or after the delivery of the placenta will depend upon the size of the laceration or episiotomy. A shallow laceration or episiotomy can be treated while waiting for the completion of the third stage, but extensive repairs are better left until after the placenta has been expelled.

### THIRD STAGE AND AFTER

Immediately after the baby has been set aside, the hand should be placed over the fundus uteri. After the delivery of the baby, Calkins states that the uterus assumes a discoid shape and as soon as placental separation has occurred, it becomes globular. Without further ado, the placenta may then be expressed. If relaxation of the corpus uteri occurs before or even after separation has occurred, the fundus must be massaged until firmly contracted and kept in that condition. Calkins decries the use of pituitrin before the expulsion of the placenta, but past experience would seem to establish its usefulness as a preventive of post-partum hemorrhage. Either method, however, is followed with the intent of reducing blood loss, and a short experience with Calkins' procedure will prove its efficiency in this respect.

Immediately upon expulsion, the placenta and membranes should be thoroughly inspected for defects. If gaps in the placental structure are found, search should be made immediately for remnants of the placenta left behind. It should always be remembered that invasion of the uterine cavity is a maneuver fraught with great danger to the patient and must be done with all possible aseptic and antiseptic precautions — sterile gloves, the injection of the acriflavine-glycerine solution into the vagina or insertion of the hand under a flood of lysol solution, etc.

If pituitrin has not been given already, it should be used after the placental expulsion, particularly if the uterus shows a tendency to relax followed by some active preparation of ergot. One should always remain in close touch with the patient for at least an hour after the labor is over to forestall any post-partum hemorrhage.

In the conclusion of this sketchy outline, it should be reiterated that the conduct of normal labor presupposes that the physician be watchful so that he may anticipate and forestall complications, that he should do nothing to harm either of his patients and that he leaves her in a condition as near as possible to that in which she was before she became pregnant.

# EPITHELIAL NEW-GROWTHS*

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Sufficient attention has not been given in the general medical literature relative to the recognition of pre-malignant dermatoses and of very early skin cancer itself. The obvious rodent ulcer and squamous cell carcinoma need little attention here. It is the object of this article to relate facts relative to that lesion which is already malignant but of such early character as to permit of the conception of that fact and allow the institution of such care as will remove the lesion prior to metastasis of the squamous cell type of carcinoma or will permit of a better cosmetic treatment of the locally destructive basal cell type. The early recognition of these lesions is dependent upon a degree of familiarity with those conditions arising as a result of new growths of those elements comprising the epidemis.

The skin is composed of epidermis, containing basal and prickle cells overlaid by keratin, and an underlying corium of connective tissue supporting the epidermis and supplying such nutrition as the epidermis receives. Embedded within the corium are the sebaceous and sweat glands and the hair follicle. Each of these component parts may be involved in tumor formation, either benign or malignant. Because of this fact, ample opportunity is presented here for the study of benign lesions and their transformation into malignant tumors.

The epidermal appendages listed above consist of invaginations into the corium of epithelial tissue, all three maintaining more or less intact the structure of the basal layer. Under normal conditions this is the only layer capable of cell division. Under abnormal conditions, aberrant growths and cell division may continue on into the squamous cells; any abnormal growth above the rete being dependant upon activity in the rete itself. Aberrant growths involving the basal layer may involve not only the layer of Remak, but also the basal cells forming the limiting structure of the skin appendages. Much discussion has revolved about the origin of skin cancer, many claiming it to be a down-growth from the skin proper, others claiming its origin from skin appendages. Since there are benign growths of the appendages, it does not seem unreasonable that malignant lesions might also have their origin within the appendages.

For the purpose of exemplifying the foregoing the following dermatoses will be discussed:

1. Sebaceous adenoma.
2. Syringoma.
3. Keratosis senilis.
4. Keratosis seborrheica.
5. Basal cell carcinoma.
6. Squamous cell carcinoma.

## SENILE SEBACEOUS ADENOMA

Senile sebaceous adenoma is a disorder of the sebaceous glands. The lesions, varying in number, occur about the forehead, and cheeks in persons beyond midlife, men and women being equally affected. It is usually seen in combination with a seborrheic tendency and may have an associated rosacea. It is not unusual to find seborrheic keratoses as a concommitant.

The lesion consists of small yellowish to skin colored papules, having a roughened surface and, on occasion, are umbilicated. Though bilateral, they may be scattered irregularly over the anterior oval of the face. They give rise to no subjective symptoms. Little difficulty should be encountered in identifying, clinically, these lesions.

Histologically the lesion consists of a hyperplasia and a new growth of sebaceous glands all of which maintain their connection with the lanugo hair follicles.

There is no record of this type of lesion having undergone malignant change.

The treatment consists of any of the mildly destructive measures applicable to small skin tumors which are not subject to malignancy, such as diathermy, excision or electrolysis.

## SYRINGOMA

Under the various names of syringoma, syringocystadenoma, acanthoma adenoides cysticum and trichoepithelioma are a number of skin tumors, nevoid in character, which have their origin in the epithelium. Attempts have been made to classify under the names suggested above the origin of these growths, dependent upon their having sprung from the basal layer of the rete, from the basal layer of the sweat gland or from the basal layer of the hair follicles. Frequently, although undifferentiated, it is possible through sites of predilection to arrive at the differential diagnosis of these lesions. They consist of small nodular, translucent lesions which are firm, and vary in size from pin head to pea sized and larger. They are found most commonly on the cheeks below the eyelids, on the nose, in the supra clavicular spaces, on the breasts and the upper arms. The condition is occasionally seen in several members of a family and is considered as an embryonal cell rest which does not develop until puberty or later.

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| Senile Sebaceous Adenoma | Syringoma | Senile Keratosis | Seborrhoeic Keratosis | Basal Carcinoma | Squamous Cell Carcinoma |
|---|---|---|---|---|---|
| **Age:**<br>After 35 | After Puberty | After 60 usually | After 40 usually | After 40 | After 40 |
| **Sex:**<br>Male and Female<br>**Number:**<br>Multiple | Male and Female<br>Multiple | Male usually<br>Multiple | Female and Male<br>Multiple | Male and Female<br>Single—May be Multiple | Male usually<br>Single usually |
| **Location:**<br>Face<br>Forehead<br>Nose<br>Cheeks | Nose<br>Cheeks<br>Neck<br>Upper Trunk | Face<br>Hands | Face<br>Trunk<br>Abdomen | Face<br>Upper Trunk | Face<br>Hands<br>Around Natural Orifices |
| **Symmetry:**<br>Roughly | Usually | May be | Usually | Assymmetry | Assymmetry |
| **Characteristics:**<br>Small Papule<br>Yellow to Gray<br>Umbilication<br>Bilateral<br>Rough Surface<br>Non-Inflammatory<br>Soft | Small Nodules<br>Pink to Skin Color to Brown<br>Pinhead to Pea Sized<br>Translucent<br>Non-Inflammatory<br>Firm | Firm—Adherent Scale<br>Crust on Redish Base<br>May be depressed<br>Rough to Touch<br>Sharp Demarcation<br>Removal of Crust Reveals Projections fitting Follicles<br>No Inflammatory Change | Oval—Round<br>Flat Elevations<br>Granular Surface<br>Greasy Scale<br>Gray-Brown-Black<br>Warty Projections on removal of surface<br>Follicle openings patent<br>No inflammation<br>Sharp Circumscription<br>Soft | Small Translucent Pinkish Nodule<br>Little Scale or Crust<br>Lateral Growth<br>Ulceration Late<br>Ulcer has Wax-like Border—Firm<br>Locally Destructive<br>May Change to Squamous Cell Type | Rough Warty Patch or Small Red Scale Covered Nodule<br>Early Ulceration<br>Crusting<br>Papillomatous Formation<br>Cauliflower Growth<br>Induration<br>Undermined Margin<br>Exudate<br>Foul Odor |
| **Associated:**<br>Oily Skin<br>Seb. Keratosis<br>Rosacea | None | Dry Skin<br>Wrinkling<br>Hyper-Pigmentation | Oily Skin and Seborrhea | Dry or Seborrhoeic Skin<br>Inherited<br>No Adenopathy | Leucoplakia<br>Fissures<br>Persistent Crusts<br>Harsh Dry Skin<br>Inherited or Acquired Adenopathy |
| **Progress:**<br>Exceedingly Slow Years | Very Slow | Slow<br>Months | Very Slow<br>Years | Slow<br>Peripheral Invasion<br>Center Healing<br>Months | Rapid<br>Peripheral & Deep<br>No Healing<br>Weeks |
| **Subj. Symptoms:**<br>None | None | None | None | None Early | Pain Late |
| **Histology:**<br>Hyper Plasia and New Growth of Sebaceous Gland Connected with Follicle | Cysts Deep in Cutis | Para Keratosis<br>Acanthosis<br>Inflam. Reaction<br>Basophilic Degen. of Upper Cutis<br>Mitoses Increased<br>Squamous Cell Degen. | Hyper-Keratosis<br>Para Keratosis Not Marked<br>Nevoid Grouping of Epithelial Cells<br>Horn Cysts<br>Con. Tissue Islands<br>Basoph. Degen. of Cutis<br>Pigment Variable | Hyper-Keratosis<br>Cells Undifferentiated<br>Retains Basal Cell Formation<br>Inflam.<br>Variation from Normal Stain Characteristic | Irregularity<br>Cells Differentiated<br>No Limiting Cells<br>Inflam.<br>Pearl and Whirl Formation |
| **Therapy:**<br>Electrolysis<br>Fulguration | Excision<br>Fulguration<br>X-ray | Radium<br>Actual Cautery<br>X-ray | Curette-Cautery<br>Radium<br>X-ray<br>Excision | Excision<br>Cautery<br>X-ray<br>Radium<br>Fulguration | Fulguration<br>Excision (wide)<br>Radium or X-ray<br>Block Gland Dissection |

Histologically acanthoma adenoides cysticum presents numerous well developed hair follicles maintaining their sebaceous glands. Closely associated with these hair follicles are numerous solid columns of cells, epithelial in character, projecting into the connective tissue. In association with these columns are numerous cystlike formations of varying size containing lamellous horn layers. The cysts are composed of several layers of cells those limiting the tumor being of basal character and arranged in palisade formation.

Although benign there are instances in which this condition has undergone malignant change, presenting then the clinical and histological picture of a basal cell carcinoma.

The pathological picture of syringocystadenoma consists of an unchanged horny layer, a thinning of the granular layer, and a basal layer regularly arranged, presenting edema and vesicular nuclei. The papillae are flattened and the blood vessels present no inflammatory changes. Hair follicles and sebaceous glands may be found in the tissue although frequently the structure of the normal sweat gland is lacking. Midway in the corium and extending to the sub-cutis are numerous cyst-like formations having one or two rows of cells forming the cyst which encloses layers of epidermal debris. Whether these cysts have their origin in normal sweat glands or sweat ducts or are congenital or an acquired defect of the sweat glands is open to question. It has been demonstrated that cysts similar to those of syringocystadenoma have had direct connection through columns of cells with the layer of Remak. It has seemed advisable, therefore, to classify syringocystadenoma with the acanthoma adenoides cysticum and syringomas, forming one group of anomalous tumors rather than attempting to establish definitely their origin. In those instances in which it has been definitely established that the lesions are a new growth rather than nevoid their response to x-ray therapy has been that of a cure. Those which are nevoid in character require destructive measures such as the cautery, fulguration or excision.

### SENILA KERATOSIS

Senile keratoses consist of flat to slightly elevated, pea to dime sized multiple lesions of a brown to gray or black color, having adherent scales or crusts. They are sharply demarcated and rough to touch. A removal of the horny crusts reveals projections on the base of the crusts which fit into dilated follicles. Ordinarily they are not inflammatory and are associated with dryness, hyper-pigmentation and wrinkling of the skin. They occur usually in people beyond the age of sixty, on the temples, the face, and the dorsum of the hands, and are seen in those especially exposed to the elements.

The pathological picture shows a marked hyperkeratosis with an occasional parakeratosis and an acanthosis. There is a mild inflammatory reaction in the papillary body with some tendency to basophilic degeneration in the upper cutis. The pigment change is variable. There is only a slight increase in the number of mitotic figures seen in the epithelium. There are no horn cysts present, and they do not present a nevoid tendency.

When underging malignant change the tendency is rather toward the squamous cell type of degeneration.

The treatment of senile keratoses consists of the use of radium, x-ray, or preferably the curette followed by actual cautery.

### SEBORRHEIC KERATOSIS

Seborrheic keratoses consist of multiple, sharply circumscribed, oval or round, flat topped elevations, possessing a granular surface. They are gray, brown or black in color, and frequently have greasy friable scales. On removal of these scales there is a warty projection of the underlying skin, the follicular openings remaining patent. There is no inflammatory reaction present.

These lesions occur in men and women alike; on the chest, the interscapular region, the face and the waist line and only rarely on the hands. There is usually associated a seborrheic or oily skin. There are no subjective symptoms.

Histologically the lesions show a tendency toward nevoid grouping of epithelial cells with a budding of the elongated process that extend into the corium. These elongated processes have inter-communications and between this nevoid type of grouping, are islands of connective tissue which show some tendency toward a basophiliac degeneration. Hyper- or para-keratosis, although present, is not marked. There is a tendency toward cyst formation and a marked dilatation of the follicles is apparent. Pigmentation is variable. In some it is marked, in others apparently normal. Mitotic figures are rare. Edema and inflammatory infiltration although present are not marked. Although ordinarily not subject to malignant change, if degeneration occurs it is usually of basal cell character.

The treatment of seborrheic keratosis is removal by means of skin curette, and the use of the actual cautery.

### BASAL CELL CARCINOMA

Basal cell carcinoma presents itself early as a small, glistening white to red translucent nodule, usually seen on the upper part of the face and trunk. It exhibits a tendency toward very slow growth. The lesions may be single or multple; have a little tendency towards scaliness or crusting, progressing by lateral growth with little ulceration. As the lesion becomes larger it spreads peripherally and there is a tendency for the ulcer to heal, presenting then scar tissue, the elevated border of which is wax-like or pearly. Frequently the ulcer persists, exhibiting a depressed ulcer, also having the elevated pearly border. The ulceration may on occasion assume massive proportions involving neighboring structures. The lesion occurs in adult males or females usually beyond the age of midlife, although it has been known to occur in individuals of eighteen to twenty.

The sites of predilection are the face, especially the upper portion of the face around the eyes, the nose, and the temples. It may occur on the ears and on the trunk.

The predisposing factors are a dry, harsh skin, which may be inherited or acquired. It is not uncommonly seen in those possessing a seborrheic type of skin and is seen in association with seborrheic keratosis.

The degree of destruction is dependent upon the location and underlying structures. There is no tendency toward lymph node metastasis although it must be remembered that the basal cell carcinoma may on occasion take on the mixed form of Krompecher and under such circumstances may involve the lymphatics.

Histologically the first change noted in a basal cell carcinoma consists either of a downgrowth or a budding of the interpapillary processes. At this time there is a beginning moderate lymphatic and plasma cell infiltration in the corium with some extention into the rete, and a dilatation of the capillaries.

The second stage shows a clubbing of this downward projection and a marked prolipheration of basal cells. As a result of this growth there is a compression of the connective tissue of the corium. Seemingly this compression forces a pinching off of the budded process and there may be seen free in the corium islands of undifferentiated cells. Although maintaining the charactertistic shape of basal cells, on staining with hematoxylin eosin there is a noticeable change in color between the cells in the new growth and in those within the rete; the entire tumor mass taking the stain more heavily. There is a marked increase in mitotic figures. As this process continues with additional budding and breaking off we see numerous solid masses of deeply staining basal cells. These masses may remain solid or show centrol degeneration as a result of loss of nutrition and form cyst-like spaces of variable size. As the malignant degeneration increases there is a tendency toward ulceration, extending through the epidermis with a resultant secondary infection and an accumulation of polymorphonuclear leucocytes surrounding the cell masses and invading the rete cells of the epidermis. The treatment is fulguration, cautery, excision, radium or x-ray.

### SQUAMOUS CELL CARCINOMA

The squamous cell carcinoma early consists of scaling and crusting, rough, warty, keratotic patches of varying size. Occasionally they may begin as small red or yellow scale-covered, deep seated nodules. There growth is comparatively rapid and there is a tendency toward early ulceration, the ulcer having a sharply defined indurated base. The lesion spreads both peripherally and deeply, having an undermined margin. They may be papillomatous, showing a cauliflower-like growth with a broad pedicle and have a foul smelling exudate. They usually occur in adult life, males predominating.

Predisposing factors are a harsh, dry skin which may be inherited or acquired. They occur more frequently in men than in women.

Squamous cell carcinoma may develop on a number of different benign proliferations and from degenerative changes occurring in normal epithelium. They may be preceded by senile keratoses, leucoplakia, lupus vulgaris, x-ray atrophies, scar tissue and any chronically irritated area. They appear usually near the natural openings of the body, though they may occur on any portion of the skin surface.

Histologically, the early picture presents a confusion of elongated and widened rete cones, one process merging into another without regard for direction. As a result there may be seen in cross section, round clumps or columns of cells forming an irregular network. The amount of connective tissue stroma varies with the type. In the flat type it plays little part; in the papillomatous type it may be seen as forming a very important part of the tumor mass. This form is freely supplied with blood vessels and being easily subject to injury, hemorrhages with resultant crust formation.

The epithelial mass is made up of many types of atypical prickle cells which maintain either their normal dermatosomes or an overdeveloped filamentous union. These cell masses, whether due to pressure or to the inherent quality of a prickle cell, form "whirls" the center of which is composed of horn cells, some of which maintain their nucleus. The cellular infiltrate, composed mainly of lymphocytes and plasma cells with a few leucocytes, forms a wall about the cell masses. The vascular structure is changed, the vessels showing a marked thickening of the walls, with loosely formed cells which presumably aid in the possibility of metastasis which is seen comparatively early.

Though usually true to form, Krompecher has estimated that five per cent of all skin cancer is of a mixed basal and squamous cell type.

In squamous cell carcinoma the cells exhibit different stages of development. The degree of differentiation marks the degree of malignancy. Those lesions having cells showing complete differentiation are graded as a No. 1. Those lesions exhibiting cells almost completely undifferentiated are graded as No. iv, those relatively less undifferentiated grade iii, etc., these grades may be accepted as the relative malignancy of the lesion, No. 1 being less malignant, No. 4 having the greatest degree of malignancy and mortality. The establishment of this fact is of extreme importance in selecting the best method of treatment.

The treatment of squamous cell cancer consists of a radical removal by excision, cautery excision or fulguration, with subsequent x-ray or radium and block dissection of lymphatics.

In summarizing, six epithelial new-growths have been described clinically and a differential chart appended. These new growths represent benign or malignant changes occurring in all the layers of the epidermis proper and from the epithelial tissue of the skin appendages. Methods of treatment of the various lesions are suggested.

# THE CONSERVATIVE TREATMENT OF CHRONIC DISCHARGING EAR*

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The treatment of chronic middle ear suppuration includes some of the most tedious problems of Otology. Set deeply in bone among structures of vital importance yet exposed to bacterial invasion along two distinct avenues, the middle ear cavity affords many difficulties because reinfection is so frequent. The relatively pure cultures disclosed at myringotomy are usually found changed to a far different and varied flora after a few weeks. In discussing this subject today I prefer to deal with those cases which have a history of a chronic draining ear for from six months to twenty years. Let us first consider briefly gross pathology.

## GROSS PATHOLOGY

The anatomical conditions which favor chronicity of aural suppurations are those relations which impede free drainage, as the pouching of the tympanic lining, the thickening, thinning or scarring of the membrana tympani. The location of the perforations, whether single or multiple, in pars tensa or pars flaccida, plays an important part. The maceration of epithelial lining, cell death and exfoliation deprive the mucosa of its original power of phagocytosis. The small marginal perforations in the upper part of the pars tensa does not permit inspection, and favors continuance of discharge. Such perforations require enlargement. Another type includes large openings with visible granulations which often become elongated and assume polypoid forms. One of the most trying groups include large perforations through which polyps and granular tissue protrude. These polyps arise from regions inaccessible to ordinary means of removal. Perforations in the pars flaccida are very often tiny and the portals of the most chronic and perhaps the most insidious form of ear suppurations. Such openings are often masked behind an apparently innocent flake of cerumen. It is a well known fact that multiple perforations with free discharge and slow repair suggest tuberculosis. Cerumen plugs, exostoses, or any obstructions in the external canal hamper drainage which is the first object of treatment. Eczema, thickening, fistulae and ossicular lesions play a part in the gross pathology.

## MINUTE PATHOLOGY

The normal thin cuboidal tympanic epithelium becomes thickened and hyperplasia takes place. The normal ciliated tubal epithelium undergoes changes and invades the tympanum. There is a difinite increase in fibrous tissue, and edema, and leukocytic infiltration. Increased vascularity is noted. There is an increase of hystiocytes and the presence of foreign body giant cells and giant cells is noted. Squamous epithelioid cells from the external meatus invade the middle ear through perforations. In the more chronic types the development of cholesteatoma takes place. A cholesteatoma is a lamellated or onion like mass of pultaceous material full of micro-organisms of many varieties. They increase in size from the continual deposition of fresh layers till it fills the cavity completely. Slow erosion of bone occurs especially in projecting spots. The external semicircular canal is particularly liable to become eroded, resulting in the invasion of the labyrinth by the septic process. The dura on the roof of the tympanum may be laid bare or the lateral sinus posterior may become involved and result in the utmost grave situation. Likewise the seventh nerve, tympanic muscles, the ossicles and ligaments may be affected.

## PREDISPOSING FACTORS

General: Syphilis, tuberculosis, diabetes, vitamin deficiencies, allergic and bacterial sensitivity may play a part. Impaired physical resistance, general or local, must always be reckoned with. The toxins of scarlet fever, measles, diphtheria, whooping cough, pneumonia, and typhoid have a special influence upon intra-tympanic invasion.

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Blood stream invasion causing loss of resistance, and circulation of soluble toxins from various causes have definite effects upon the phagocytic power of the blood, resulting in a distinct loss of red cells and a marked loss of hemoglobin.

Local: The lack of good care of an acute suppurative otitis should be mentioned first. Persistent nasopharyngeal suppuration, and the persistent adenoid play an important part. Continual chilling and undue exposure may be considered contributing causes. Water through the eustachian tube or external meatus, meddlesome or irritating applications or treatment, external violence, foreign bodies, insects, must be mentioned in passing.

### INFECTIVE AGENTS

Streptococcus in all its strains, especially the mucosus, staphylococcus, saprophytic, granulomatous, pseudomembranous (diphtheritic, pneumococcic) fungoid, and even parasitic.

### LOCAL FINDINGS

1. Type of discharge: (a) mucoid, (b) purulent, (c) greenish.
Odor of discharge: (a) putrefactive, (b) garbage.
2. Type of perforation: Large or small. 1. Central. 2. Marginal. 3. Shrapnell's.
3. Destructive processes of the middle ear and ossicles.
4. Granulations and polypi.
5. Cholesteatoma.
6. Fistula.
7. Dead labyrinth.

Cases which should not be treated conservatively and in which radical surgery should be resorted to:

1. Dead labyrinth.
2. Deep, dull headaches with mental fatigue and local findings indicating extension.
3. Fistula.
4. Facial palsy.
5. Evidence of extensive destruction and excessive granulations. Attacks of vertigo, pain, facial palsy, loss of weight are dangerous symptoms.

### ARMENTARIUM

Compressed air, gentle suction, gentle small sized instruments, snares, cerumen hooks, middle ear forceps, curettes, smooth and cutting ring and spoon, eustachian catheters, instruments for ossiculectomy, attic and tube operations.

Good monocular depth perception is absolutely essential and it is needless to say that an exceedingly delicate touch is necessary for intratympanic manipulation. One must be sure of his land marks at all times.

### PRINCIPLES OF TREATMENT

Meticulous cleansing of the meatus, membrana tympani and perforation: Rigid asepsis is necessary. Where eczema is present the use of caustic measures should be done with caution. Some cases are prone to fissures and furuncles. Local anesthetics: Menthol, phenol, cocain āā mixture is probably the best.

"Zinc ionization" has gained some enthusiastic advocates. The procedure is of no value unless the perforation in the drum is big enough to let the electrolytic fluid into all parts of the suppurating area. Many authorities have given this painful method up. Irradiation and light therapy have some advocates, but I have my doubts.

Subcutaneous vaccines, autogenous vaccines, allergens ointments, and jellies are used by some otologists with varying results. Some make an attempt to identify the bacteria found within the suppurating ear, but I have usually discovered such a conglomerate mixture that it didn't mean anything. Some have made a chemical examination of the pus to determine whether cholesteatoma, calcium, etc., are present. Many of these procedures have been tried and abandoned.

### SUMMARIZING ON PRINCIPLES OF TREATMENT

1. Cleanliness. 2. Free drainage. 3. Evacuation of granulation, cholesteatoma, debris, etc. 4. Dehydration. 5. Antisepsis. 6. Elimination of granulations. 7. Nasopharynx.

Middle ear and attic irrigations with alcohol and suction are perhaps the most valuable procedures in treating chronic middle ear suppuration, since they are the most effective means of eliminating crusts, debris, exfoliated epithelium and cholesteatoma, without which a cure is impossible. Cholesteatoma is an absolute contraindication against douching.

### MEDICAMENTS

1. Alcohol. 2. Alcohol and boric Acid. 3. Alcohol and Iodine. 4. Boric Acid Powder. Iodine Powder. 5. Hydrogen Peroxide. 6. Analine dyes, tinctures best. 7. Glacial acetic pyocyaneous. 8. Salicylic acid and alcohol for mycosis. 9. Salvarsan and glycerine, chromic acid, etc., for Vincent's angina. 10. Enzymol for granulation. 11. Cresatin (metacresylacetate). 12. Bacteriophage and vaccines. 13. Iodine Powder Vapor.

### EAR DROPS

(Against chronic suppuration and its recurrence).

Forbid: 1. Autoinflation, noseblowing, ear douching, diving, swimming, water into ear when taking a bath or washing hair. Hygiene and removal of septic foci in the nose, throat, accessory sinuses and teeth are again emphasized. Prophylactic removal of tonsils and adenoids is advocated by some authorities even during the progress of otitis media.

Diet in children especially should include plenty of antiscorbutic foods, namely fresh vegetable, carrots, citrus fruit juices, sea foods. Cod liver oil, haliver oil with viosterol are of special value. Thyroid and parathyroid deficiencies are common and often result in a corresponding loss of calcium content in the blood, and may be considered as factors in lowered resistance to chronic cases. It is therefore suggested that in sluggish cases one try the guarded administration of thyroid or parathyroid without calcium. Calcium gluconate 45 to 60 grains daily is also a valuable asset.

### CONCLUSIONS

Cessation of discharge, odor, etc., occurs in conservative treatment in 50 or 60 per cent of the cases, the rest requiring local or neighboring surgical relief.

The objects to be attained by treatment include securing and maintaining free drainage, aseptic cleansing, determination of type of infection, antiseptic treatment, removal of local or general causes of reinfection, drying up of the discharge and restoration of hearing.

The burden of scar tissue is added to by reinfections from outside sources. Let me again warn against the bad effects of water from swimming, by way of external ear or the eustachian tube; faulty blowing of nose; improper nasal irrigation.

Recurrent aural discharges which become thick and copious upon short notice and disappear after a short course only to flare up with the next severe cold may have a deleterious effect upon the tympanic structures for years, with so gradual a loss of hearing that the patient is often entirely unaware of the deficiency. These cases call for the sternest measures of cure and prophylaxis against renewed infections.

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# ORAL CANCER

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In this short presentation but a few phases of oral cancer can be considered, but even a limited consideration of this common cause of death in elderly people is worth while. This group will include neoplasms of the lip, alveolar ridge, buccal mucosa, tongue, floor of the mouth, and the bony and cartilaginous structures of the face. With the exception of the last named, these structures are accessible to direct examination; and for this reason any changes may be discovered, observed for a time, or immediately eradicated if the step seems indicated. Oral cancer is noted for accessibility, its curability, and its preventability, yet it is the cause of more than 3,000 deaths anually. It is therefore obvious that precancerous conditions, as well as early signs of cancer, are not being recognized as early, nor being treated as skillfully as our present knowledge permits.

### ETIOLOGY

Oral cancer is more prevalent in the unclean and neglected mouth. It often develops in an area where there has been considerable chronic irritation; either from tobacco, dental decay, irregular teeth, pyorrhea, poorly constructed crowns, or ill fitting dentures. A white area or a leukoplakia will often develop at the site of irritation. This condition is often found in the mouths of individuals who use tobacco extensively. Since at least twenty-five per cent of oral cancers have their base in leukoplakia, it is considered a precancerous lesion.

Syphilis predisposes an individual to oral cancer. While chronic irritation is behind most oral cancers, it has been occasionally seen to develop at the site of a single trauma. This factor must be kept in mind in those individuals having syphilis or those who smoke heavily. Summarizing up the causative factors of cancer of the mouth, they are briefly; syphilis, tobacco, poor oral hygiene, and poor dentistry.

### PRECANCEROUS LESIONS

Every physical examination should include a complete survey of the oral cavity, yet this procedure is often neglected, the physician leaving it entirely up to the patient's dentist. We are encouraging the laymen to have periodical health examinations. When an individual submits to these examinations, he rightfully expects his attention called to all conditions that may become serious. A large percentage of oral cancers could be prevented if precancerous conditions were noted early and corrected immediately.

In clinically surveying the mouth, we should observe any signs of irritation such as those listed above. Special attention should be given individuals wearing dentures. During the past year we have had eight cases of oral cancer, which had their origin in faulty dentures. It has been my experience to find that the average physician does not recognize poorly constructed dentistry any better than the laymen. I have come to this conclusion, after caring for a number of their mouths, and finding considerable poorly constructed dental work of which they were unaware. If you as a physician are in doubt as to the character of dental work in a mouth, it is your duty to see that it is examined by someone who is reliable and capable. Any condition within the mouth that causes irritation should be corrected.

The mucous membrane should be examined for tenderness or elevations. When leukoplakia is found the patient should be told of its significance, and advised to discontinue the use of tobacco in any form. If these instructions are carried out, the condition usually clears up, although the mouth should be examined periodically for tissue changes. If the condition does not clear up, or if it takes on any progressive change in appearance, it should be completely excised. Under no condition should caustics be applied to these areas.

A complete survey of the oral cavity should include radiograms of the teeth, in order that any pathological conditions at the root apices or in any other part of the bony structures may be observed. Various small cysts that are often found in the jaws, as well as the giant cell tumor, the fibromatous tumor, and the multilocular cyst seldom have any bearing toward cancer, but there is always that possibility. Therefore it is important when removing these growths, to send a section of tissue to the laboratory for diagnosis. There is no positive way of knowing that these neoplasms are not malignant without tissue examination. There is nothing in the radiogram to make a positive differential diagnosis. Bloodgood suggests that if the neoplasm to be removed is larger than that usually found, or if it is of a rarer type, the pathologist should be present at the operation to make frozen section and render his diagnosis immediately. In this manner no time would be lost in carrying out further treatment if it was found to be malignant.

In removing these benign growths it is important that every cell of the neoplasm be removed, for if a few cells remain it will recur.

If the physician does not remove the growth entirely nor cauterize the base, he will not have any better luck than the dentist. Eventually the patient gets into the hands of the oral surgeon. At the present time we are caring for a large cyst of the mandible, the removal of which has been attempted by three dentists and two physicians. Complete removal by anyone of them, we feel sure, would have been followed by a cure. A more extensive operation has effected a complete removal, and we were glad to find that it was still in the benign state.

## DIAGNOSIS

If the clinical or x-ray picture of a lesion within the oral cavity suggests any deviation from that normally found in these benign conditions, we should consider the possibility of malignancy at least until it has proved otherwise. A blood Wassermann should be taken of all patients showing changes in the oral structures. If there is any form of irritation present such as an ill fitting denture, it should be removed and the condition observed for a few days until its final course can definitely be determined. A complete history and physical examination of the patient should be obtained to rule out such conditions as syphilis, diabetes, tuberculosis, any of the blood dyscrasias, or the possibility of metastasis from some other part of the body. We should also obtain a specific history of the lesion. Does the patient remember receiving any trauma to this area? Has there been any pain or discomfort? We should know the exact time that it was first noted, and its size and appearance at that time. Rapid growth or periods of rapid growth always suggest malignancy. We should note the position of the lesion and the condition of the adjacent teeth and tissues. Oral cancer breaks down, ulcerates, and sloughs early. Such descriptions as horny, warty, cauliflower, or fungus appearance, suggests malignancy. All the adjacent lymph glands should be palpated thoroughly for glandular involvement.

A positive diagnosis may be obtained by a biopsy, yet we should not, without further consideration, cut into these tissues to obtain a section for examination. There is considerable controversy over the question of biopsy in oral lesions. Cutting into cancer bearing tissue increases the danger of dissemination of cancer cells both locally and to distant parts, and it also opens the tissue to possible secondary infection. Jaffe concludes after doing a large number of necropsies upon patients who died with oral cancer, that 75 per cent of these patients died from the secondary infection rather than the cancer itself. On the other hand there are important advantages in definitely diagnosing malignancy and knowing something of its histological structure. In certain tumors an aspiration biopsy may be taken. This being done with an 18 gauge needle, the risk from dissemination from this tiny break is slight. If the pathologist is well acquainted with the clinical data of the case, the tissue so secured is sufficient to make a diagnosis. It is important that enough tissue be taken and that it be taken from the right place when taking a biopsy, if we expect the report to be of any value. For instance, if a section of the superficial inflamed tissue is submitted for miscroscopic examination, all the pathologist can report is inflammatory tissue. This is not only misleading, but gives us no report of the histological structure of the tumor.

### CLASSIFICATION—TREATMENT AND PROGNOSIS

If a lesion within the mouth suggests malignancy, the surgeon is faced with a great responsibility. Should a biopsy be taken? Is surgery or irradiation indicated? If both are indicated which should precede? The better method is to call in a competent pathologist and radiologist before making any decisions. After they have heard the history and examined the case, their suggestions will be valuable. A biopsy will give us the histological structure of the tumor. Jaffe tells us we cannot grade malignant tumors of the oral cavity according to their histological structure. He has seen many of these tumors growing rapidly and with extensive metastasis, while the miscroscopic examination revealed the cells well differentiated. In other instances, he found tumors composed of undifferentiated and immature cells having the tendency to grow slowly. However if we know something of the histological structure, we have some idea as to the result we may expect from irradiation. Tumors composed of undifferentiated and immature cells are radiosensitive, and those composed of highly differentiated cells are radioresistant. The osteogenic sarcoma and most other tumors arising within the bone seem to be completely radioresistant. In these cases surgery seems to be the only hope. All epidermoid cancers are radiosensitive and fortunately a large percentage of oral cancers fall into this group.

The basal cell cancer does not readily metastasize and if small can be cured by complete excision or by its destruction with irradiation or electriothermic methods. If it is large and involving the bony structures, irradiation is the choice, followed by a destruction of any fungating mass with the cautery.

The squamous cell cancer or epitheloma is more difficult as it matastasizes early. Epitheloma of the lip involves first the lymph nodes of the submental and submaxillary regions, and subsequently the superficial and deep superior cervical nodes.

The primary lesion is probably best treated with interstitial radiation while the adjacent tissues and the glandular areas are best treated with deep x-rays. The best procedure in carrying out this treatment is usually to give thorough roentgen irradiation by the fractional method over both sides of the neck from the submaxillary to the supraclavicular region as the first step. This will occupy about two weeks time. During this time as much infection and debris as possible is removed from the oral cavity without disturbing the lesion. The general health can also be built up. In about three months from this time, or when all roentgen reaction has subsided, any palpable nodes in the neck may be treated by implantation of radium through an incision. If at all possible the lymph glands are saved to aid in the filtration of further cancer, and are not removed unless absolutely necessary.

It is important that a good radiologist be chosen to carry out this treatment. If he is incompetent, he may not apply the irradiation in such a manner that the maximum benefits will be reached. There is no branch of medicine that is advancing as rapidly as radiology. A few years ago it was used on only hopeless cases, today it is rapidly advancing as an indispensable aid to practically all types of cancer. In treating cancer with irradiation, the amount of dosage and method of giving it is important if the best results are to be obtained. The dosage must be the amount that will destroy all neoplastic cells without destroying any normal tissue surrounding. The method of inserting the radium needles for the interstitial irradiation is very important in order that the rays will reach the exact area necessary for cancer cell destruction. We carry out methods devised by Cutler and his associates, by which the radium is held in various positions by dental apparatus made of lead, thereby controlling the direction of the rays and protecting neighboring normal tissue.

Statistics from our leading cancer clinics show that good irradiation is curing 20 to 30 per cent of oral cancers, including many cases that a short time ago would have been classed inoperable; the best results obtained from good surgery was 15 to 20 per cent. The profession is advancing rapidly in the cure of these accessible cancers. Deaths from oral cancer would greatly decrease if lesions in the oral cavity were noted earlier.

The dental profession must be further educated to the recognitiion of these lesions. In the meantime, the physicians should not leave the examination of the oral cavity solely up to the dentist who is too often interested only in the teeth; but must remember that conditions within the mouth are also his responsibility.

It is to be regretted that men in our rural districts, who are often our busiest physicians with little time to read, do not have the opportunity to attend the various tumor clinics that are being conducted weekly in some of the hospitals of our cities. A review of tumors in this manner is greatly aiding in the early diagnosis of cancer which is the most important step in the control of all types of cancer.

# TRICHOMONAS VAGINALIS*

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Donne in 1836 identified the causative organism of a particular form of vaginitis and called it *Trico-monas Vaginale*.

Though studied in 1885 by Koelliher and Hausemann, who found it in forty to fifty per cent of their pregnancy cases, and later in 1883 by Kinstler and Hoehne, very little can be found in literature about it, until the past few years when it is being intensively studied. In 1915 Brumpt reports finding the Trichomonas Vaginale in ten per cent of cases in the gynecologic clinic in Paris and Willen, in forty per cent of leucorrheal cases in clinics in Germany. Interest seems to have lagged again but since 1929 some seventy articles have appeared in medical literature here and abroad. Percentages as reported both in pregnancy and gynecological cases vary from ten to fifty per cent. Bland, Goldstein and Wenrich found in their studies, twenty-one per cent in three hundred cases of pregnancy in clinics of Jefferson Medical College. Of these, thirty-four per cent of the 164 were colored patients, and 9:4 of the 136 were white patients. They attribute the difference to local hygienic conditions although cases are found in the most fastidious of women. Though it was thought at first that the vaginitis might be due to infection from the intestinal tract, the consensus of opinion now, is that Trichomonas Vaginalis characters distinguish it from all other species of Trichomonads. Stool examinations of patients suffering from the vaginalis vaginitis prove negative to Trichomonas intestinalis.

It is strange that so little definite work was done for so long a period of time. Though no definitely permanent cure can yet be said to be proven, amelioration of symptoms, relief of discharge and most aggravating itching makes care of the condition very worth while.

The Trichomonas Vaginale is a protozoan typically pear shape but may be oval, spindle shaped or irregular at times. It is about 7 to 30 microns long, 5 to 15 microns wide, has four flagella at anterior end, a vibrating undulating membrane extending one-half its body length with an axostyle at posterior end. The organism is most easily demonstrated by placing a drop of the vaginal secretion collected on posterior blade of a dry vaginal speculum or a finger of a rubber glove on a drop slide and examining it under cover glass under a dry high power. It can be very easily identified without the cover glass, if kept in warm saline solution. Immediate examination is very simple. Addition of warm normal salt solution dilutes the discharge and if kept warm and moist the organisms can be seen under the microscope for several hours moving about in characteristic rolling, swirling fashion causing eddies in the media that make it appear to be clumping the epithelial cells and bacteria usually present, in trembling motion. The flagella reaching out draw the cells in clumps and inject bacteria and white cells. At other times the posterior axostyle catches into a clump of cells and seems to provide the current by whipping them around.

Repeated examinations during treatment show attenuation in size of organism and lessened motion. One sees progressive lessening in size, change in shape, restricted motion in properly treated cases.

## SYMPTOMS

A profuse yellowish or pale greenish vaginal discharge, contains air bubbles and has a sour feted odor. The mucous membrane of the introitus and vaginal vault is very red and inflamed with hyperaemic punctate spots especially in posterior culdesac, at times very granular and bleeding easily to touch. Examination in acute cases is painful and the picture suggests acute neisserian infection. The discharge is always acid. Hibberts says, some have watery discharge; Stein says, never any watery discharge. Two that I treated were watery.

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*Presented before the Omaha Mid-West Clinics, November-December, 1933.

In eighty per cent or more cases itching is very severe but may be mild or absent. Vulva, super-pubic spaces, anus and inner surface of thighs may be excoriated from scratching especially if local hygiene is poor. General poor condition of health, anemia and undernourishment seem definitely to influence though many robust and healthy women are affected.

### IS THE ORGANISM A PRIMARY INVADER?

Hesseltine from his early studies at Iowa University thought it was, but in his later studies made at Chicago Lying-in Hospital. says: "Its pathogenecity is still unproved. Considers it a scavenger as it will not grow on media free of bacteria and a prerequisite of abnormal vaginal flora is necessary."

Hibbert draws conclusions from his studies that gram positive nonhemolytic streptococci are usually found in short chains causing the vaginitis and produce the media for the Trichomonas. He treats them with boullion filtrate of streptococcus and discharges cases when streptococci disappears even if the Trichomonas persists.

Stein and Cope say: "It differs from other Trichomonas and is a specific species apparently in symbiosis with bacteria in vaginal tract." Stein. and Cope. Cornell, Davis and Hesseltine feel Hibbert's evidence is not conclusive as ninety per cent of children in routine examination show gram positive diplococci and chain streptococci and do not have a vaginitis and that typical symptoms may be present without the streptococci. Slides show many forms of cocci, epithelia cells, and bacteria but not streptococci. Streptococci are formed only on cultures.

In our cases at the office, we were not able to make cultures, but acute cases though showing many cocci, epithelial cells and bacteria and I do not believe these typically streptococci.

As cases improve, fewer organisms are seen, cured cases show only a rare pus cell, much desquamated vaginal epithelial cells.

Associated organisms are also a matter of much discussion. Most slides of cases show leukocytes, epithelial cells, many cocci, bacteria and some pus cells. We have found gram negative diplo-extracellular in two slides, in one case a definite history of neisserian infection several years ago, and the other I believe was the same though I was not able to get a definite history. In this case the cocci seemed definitely bean shape. Some workers have never found g. c. others claim the dual infection exists.

Emily Barringer, in a very recent study to prove the diagnosis on two hundred cases of clinical gonorrhea by complement fixation test, gave the entire study her personal supervision using the same technicians throughout the two hundred cases, so that she could be more certain of her findings, proved that 70 cases or thirty-five per cent harbored Trichomonas Vaginalis.

Of these seventy, only three has Trichomonas alone. 3.

Trichomonas plus g. c., 26.

Trichomonas plus g. c. plus Wassermann positive, 13.

The rest, in varying numbers, contained the various forms of cocci and bacilli. She also found a greater number in summer, forty-four per cent, as compared to 27.6 per cent in winter.

### PATHOGENECITY — MORPHOLOGY

Its pathogenecity is not any better known now than in 1836. A great deal of difference of opinion exists. Haupt says: "Its transmission from the vaginal secretion to normal woman fails to produce any inflammation or changes." Bland, however, refers to characteristic changes in tissues where transferred. Dr. Lee, Greenhill and C. Davis, speak of it as a specific entity and a still greater per cent of Europeans pronounce it causative of the specific vaginitis. Its relationship to morbidity in pregnancy and puerperium is also a matter of discussion. European investigators claim a definite relationship between infection and Trichomonas Vaginalis and morbidity in the puerperium.

### AGE AND INCIDENCE

It is found mostly in adults after puberty and through menopause. I could only find six cases in children in the literature, (one girl of fourteen who has menstruated six months before.) Of the six, one was four years old, one six, three eleven years old and one fourteen. The girl of fourteen and one of the eleven year olds were sisters and their mother also harbored the organism. The difficulty of examination and treatment of children plus our tendency to diagnosis of Neisserian on finding little girls with discharge and inflammations may be a reason of small number of findings.

### MEDIA

The increase in number of organisms after menstruation brings up the question as to the addition of blood to the media or desquamated, endometrium being either a food or a media and a factor in its growth.

Stein and Cope testing with progynon addition to media in vitro, find it causes increase in growths and number. Lettuce, bean broth were at first reported as favorable media but later considered only as a temporary harboring organism if moisture and temperature are right. Two of our cases were associated with endo-metriosis and after operation both cured more readily. One case tested just before operation, a very severe endometriosis cleared later easily. One case where one organism was found in the urine, but there being no bladder symptoms even though it was a catheterized specimen it may have been contaminated in securing specimen. The organism is said never to have been found to travel intrauterine, tube or ovarian or to cause any but local symptoms. Erosions of cervix it is claimed have no bearing on the growth and may be taken care of after discharge has been reduced. My experience has been that I never got completely rid of the organism until all possibility of bleeding from erosion was stopped by cautery of the erosions.

If blood added to media is a factor in growth why should this not be predisposing causes? Hyams, in a series of 779 cauterization of cervix claims healing good but no influence on presence of Trichomonas Vaginalis. This is not the case in our experience. Of the five out of twelve cases cauterized results were very much better.

The case I worked the longest with has a peculiar soft, mossy, erosion on posterior wall of cervix at juncture of cervical and vaginal mucous membrane and I treated her ten months before she was cured. This case had a particularly difficult vagina to treat, the entroitus was so corrugated and tight that the insertion of even a very small speculum always bruised this by stretching it and bleeding occurred again. After three cauteries, lightly done because area bled so freely, and almost continuous treatment she has been free of all discharge and symptoms periodically and when last seen, had no symptoms whatsoever and we found no Trichomonas for three months in weekly tests.

In this case I feel complete cure was handicapped because of either inability to stretch the vaginal mucous membrane or enough for cleansing or application or because bleeding of the area produced a favorable media for the Trichomonas.

### TREATMENT

Multiplicity of treatment advised proves that no specific cure has been found. Mechanical removal of discharge by scrubbing followed by various forms of antiseptic, applications proved to be as good as any. Dr. E. Plass of Iowa City used neoarsphenamine but concluded no better results than by scrubs and antiseptics and less expensive treatment.

Sophia Kleegman advises green soap, scrubs of vagina very thoroughly, cleanse in clear water, dry and apply ten per cent mercurochrome and Lassar paste tampon. Quinine sulphate advised as a specific for protozoa reported by some as a cure. Stovarsol advised by Gellhorn of St. Louis, application and thoroughly cleansed, dilated vagina with powder blower. Metal bulbs, rubber or otherwise. 1 gm. stovarsol, equals parts of stovarsol sodium bicarbonate and Kaolin. No douches to be taken after this treatment. Quinine insufflations, three days in succession favorable. Afterwards, a five per cent lactic acid douche or douches with alkaline antiseptics there is a decrease in number of trichomonas and decrease in size, in discharge and distressing symptoms.

I devised a special electrically heated dryer, as cold air distressed some. Vaginal speculum is inserted and by closing labia blowing stovarsol or quinine insufflations. Care of associated lesions such as erosions is in my experience very important.

What is a cured case? Several negative tests postmenstrual are necessary to call a case cured.

Summary: No specific cure so far found or has the question of primary or secondary invader been settled. Is it a question of curing and reinfection or are infections symptoms only lessened by treatment? Treatments vary, cures not permanent but relief of symptoms and improvement in hygiene very difinite. Get down your microscope. With organisms so easily demonstrated no physician needs to fail in diagnosis and relief of patient. The nervous distress some patients are continually suffering with the continual itching and foul discharge, challenges us to give whatever relief we can and continue our study with hope of finding definite cure. Patients can be symptomatically cured at least, and I believe persistance is worthwhile. Sure and Bercey report seven cases cured with quinine insufflation. Their studies were not carried on after first negative slide, as I have found returns so frequent I do not believe their cases can be called cures. Moe and Coventry had 95 cases, sixty-eight cured, four were pregnant.

### EIGHTEEN CASE REPORTS

Two had previously had intracellular diplococci, now extracellular.

Three associated with endometriosis, heavy discharge, itching with post operative treatment. Cured.

Seven itching severe.

Eight mild itching.

Three no itching.

Ten discharge, bubbling, yellow green, odor.

Two creamy only.

Two watery. Very slight discharge but bad odor, 3.

All slides contained epithelial cells, bacteria, leukocytes, varying number of cocci, some bacilli, no intracellular cocci, short and long chains none typically streptococci.

Nine treated with quinine, and five per cent lactic acid douche, during and immediately after period ten per cent.

First five used scrubs, drying before. And one treated with scrubs first, quinine later stovarsol, was very persistent.

One scrub and Lassar's paste, two times, did not return.

One small hymen, lactic acid only, did not return.

Three mercurochrome, ten per cent suppository, soda bicarbonate, douches, later, stovarsol and lactic acid.

Erosions of cervix in five, cautery in all seemed to help clear.

Cases following hysterectomy or occurring in a post menopause responded much more easily. This makes me feel that some by-product of desquamated mucous membrane may provide the favorable media.

P. S.—Since paper was read I find U. S. P. lactic acid solution, two drachms to one quart of water, for douching twice a day during and just after menstruation, appear to aid in earlier cure.

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# PULMONARY TUBERCULOSIS—COLLAPSE THERAPY*

J. DEWEY BISGARD, M. D.,
Department of Surgery, University of Nebraska, College of Medicine,
Omaha, Nebraska.

Gradually collapse therapy of pulmonary tuberculosis is receiving due recognition as one of the major contributions to medical science. Yearly collapse measures are restoring to health an increasing number of persons who, without this aid, would have had an early death from tuberculosis. Not only are these arrested cases given a more nearly normal expectancy of life but most of them are able to resume gainful occupations and to occupy constructive places in society. Of still greater importance to society, each arrested case ceases to be a disseminator of the disease and a hazard to everyone with whom he comes in contact.

In all cases of active open tuberculosis, rigid isolation always should be the consideration a priori. Particularly should these infectious cases be isolated from children and young adults.

Rest and nutrition, the two basic principles of the treatment of pulmonary tuberculosis always should be observed and all other therapeutic agents such as collapse measures should be considered only as supplementary procedures. The assimilation of a high caloric diet increases the available supply of energy and rest conserves energy so that it can be utilized for combative and reparative processes.

Inactivity also gives some local rest to the diseased lungs by diminishing the number and amplitude of respiratory excursions, but as long as they are compelled to follow the thoracic wall and diaphragm through their periodic movements they often cannot be given the degree of rest which is essential to the promotion of healing. Particularly is this true of lungs which contain cavities.

In many of these cases, rest alone is not sufficient to arrest the disease. The pulmonary tissue must be given sufficient relaxation to permit closure of the cavities through approximation of their walls. This relaxation can be accomplished as a rule only by diminishing the volume of the lung and these objectives, relaxation and greater degree of rest, can be obtained only by collapse therapy.

In many clinics collapse therapy is used only in the treatment of cavernous lesions, but recently some phthisotherapists have used artificial pneumothorax and phrenicectomy in the treatment of suitable non-cavernous disease and even of minimal lesions. They maintain that the institution of these measures early in the course of the disease not only promises greater assurance against progression of the lesions, but also hastens a cure.

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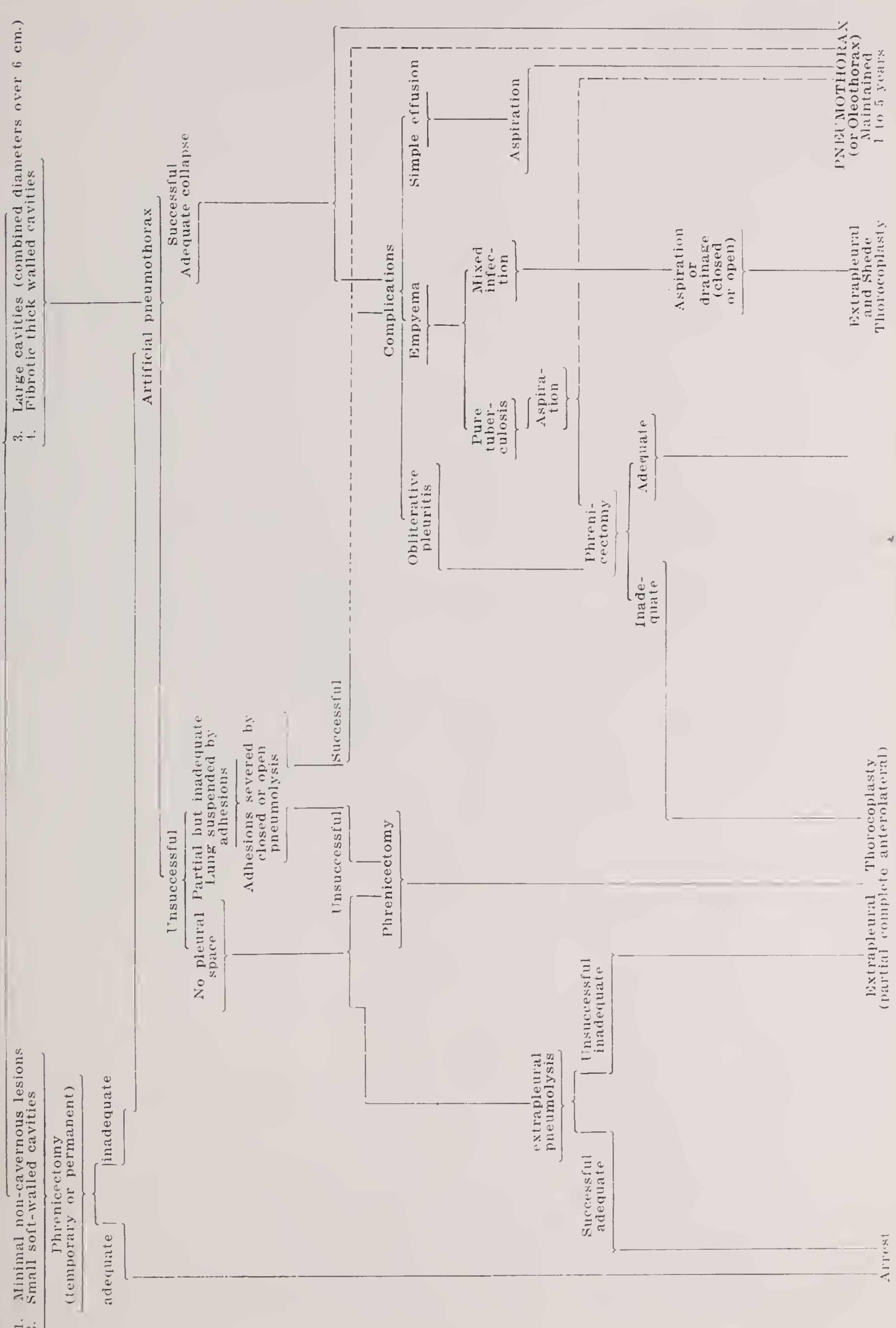
*Presented before the annual meeting, Nebraska State Medical Association, Lincoln, May 22-24, 1934.



COLLAPSE THERAPY

The proper selection of cases for collapse therapy and the type of procedure to be carried out in each individual case demands a nicety of judgment that is acquired only through a wide clinical experience. The objective sought is to obtain the degree of collapse which is necessary to arrest the disease by the simplest and least hazardous methods possible, but until this result has been obtained, the attack should be relentlessly pursued. Any compromise is likely to terminate in failure. If pneumothorax adequate to close the cavities cannot be obtained, and if phrenicectomy also has failed, one must then employ the more radical surgical procedures unless they are contra-indicated.

In cases in which cavities in a lung are prevented from closing as a result of suspension of the lung by adhesions to the thoracic wall in a partial pneumothorax, it may be possible to sever these adhesions by open or closed pneumolysis and thus free the lung sufficiently to permit closure of these cavities. In another group of cases in which the pleural space is obliterated so that pneumothorax is impossible and in which phrenicectomy is inadequate and thoracoplasty is contra-indicated, the desired collapse frequently may be obtained by extrapleural pneumolysis.

There remains a minority group of cases in whom the objective can be accomplished only by collapsing the chest wall (thoracoplasty). Again, the extent to which the thoracic wall should be collapsed varies with the individual case and should not stop short of accomplishing obliteration of the cavernous lesions.

A general outline of collapse therapy is appended. With certain exceptions, the various procedures have been arranged in the preferential sequence in which they usually are employed. In these exceptions, the author indicates affirmation in the use of phrenicectomy or pneumothorax in the treatment of certain cases with minimal lesions and preference for phrenicectomy as the initial collapse measure in the treatment of cases with small soft wall cavities. Many authorities insist that collapse therapy in all cases suitable for this treatment should begin with an attempt to induce pneumothorax.

### DISCUSSION

DR. C. EMERSON, (Lincoln): I should like to say a few words about this subject of chronic pleurisy which Dr. Bisgard has covered so thoroughly. Although the general principles of management of chronic pleurisy are well known, we still have some of the most impossible situations to handle in some of these cases.

The first cause is inadequate drainage. Then we have foreign bodies, tuberculosis, and finally bronchial fistula. These are the causes of chronic pleurisy. If they are kept in mind in the management of acute pleurisy, there will be fewer of these cases coming to the surgeon later.

The first two of these are preventable, in most cases, and it is perfectly clear just what should be done in their management. Take the first cause—inadequate drainage—and Dr. Bisgard said this inadequacy sometimes is the result of failure to recognize in time the presence of an empyema. Sometimes it is because the patient does not get into the hands of any physician early. There are other lesions in the chest, which make diagnosis difficult. The aspirating needle should be used freely in doubtful cases, and an early diagnosis made.

The second condition is the foreign body. Sometimes it is a drainage tube or something getting into the chest during the course of the accident. Often we have osteomyelitis in the rib or a calcification process going on in the pleura itself, giving rise to foreign bodies. We know the empyema will never get well as long as a foreign body is present. It should be removed.

I was glad to hear Dr. Bisgard say he spent as much time as he has on the subject of tuberculous pleurisy, because while it is probably less frequent than the other forms of chronic pleurisy, yet it presents a most difficult problem. It is well for all of us to keep in mind that one should exclude the tuberculous character of the empyema before any opening is made into the chest. That is not stressed sufficiently. It is being stressed more and more. The old dictum was an empyema should be treated like an abscess—as soon as pus was determined to be present, the thing to do was to make a wide opening and institute drainage. That is a bad practice. If it is tuberculous, as it may be, you will place this patient in the worst situation that can arise in connection with empyema.

For you to determine in a given case whether it is tuberculous or pyogenic is not always easy, but it is possible, according to Graham, in 100 per cent of the cases by removal of a small section of the pleura and examination histologically. Some authorities say if the fluid obtained is taken from dependent portions of the chest, in 100 per cent of those cases tuberculous bacilli can be demonstrated.

I think the management that has been given to you here is very excellent. The causes of this condition have been gone over pretty thoroughly. In the case of tuberculous empyema, we have several complications or situations in connection with it. We may have a tuberculous empyema which is not associated with any lesions in the lung. Again, it may be associated with extensive lung pathology. It may be a simple tuberculous empyema without secondary infection, or we may have a secondary pyogenic infection. Each presents a different problem in management.

One thing not touched upon much was the question of the development of amylois. Changes in the organs—the result of long-standing empyema. It is well to keep in mind that procrastination for too long a time should not be indulged in. It is better to take a more courageous course fairly early in the game, rather than to allow it to drift waiting for a cure until amylois changes have taken place in other organs.

DR. BISGARD, (closing): I wish to emphasize the fact that the first step in the treatment of an empyema which has become chronic as a result of inadequate drainage, is to make the drainage thoroughly adequate and dependent. Only with failure of this procedure after it has been given an adequate trial should a plastic operation on the thoracic wall be undertaken. Also many broncho-pleural fistulae will eventually close if adequate drainage is maintained.

Dr. Emerson has brought up an important point, namely the difficulty in certain cases of establishing the diagnosis of tuberculous empyema. This is illustrated in a personal case now under treatment. Two biopsies of granulation tissue from the pleural cavity were removed with a curette for diagnosis and showed no evidence of tuberculosis, but in sections of the pleura which were excised during the course of a Shede thoracoplasty, multiple tubercles were found. One should bear in mind that tuberculosis cannot be excluded even upon the basis of several negative biopsies.

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# TUBERCULAR EPIDIDYMITIS

MAX EMMERT, M. D.,
Omaha, Nebraska.

K. C., farmer, aged 21, was referred May 31, 1923, complaining of a "running sore on privates."

P.H. Patient had had pneumonia when young and more or less trouble with the tonsils in the past. No trouble recently. Three years ago was kicked on the left scrotum by a horse. There was swelling for three days since which time there has been no pain or tenderness until present illness.

P.I. About the middle of January, four and one-half months ago, the scrotum began to swell and became painful. One month later he painted it with iodine, after which the skin ruptured, liberating ¼ teacupful of thin bloody material. Prior to rupture had noticed swelling of inguinal glands which have receded since rupture. There has been a discharge of a thick white material since the initial rupture. There has been no fever or chills nor pain since the rupture.

Examination. General examination negative. Lungs clear. Urine—occasional pus cell and epithelial cell. Scrotum—on left side the globus minor is about 2 cm in diameter, and very indurated. Surface smooth. Induration is continuous with sinus opening at base of scrotum. Testicle feels normal as does globus, major and cord. Prostate shows distinct chronic inflammatory changes. There is a small area of induration toward the outer border of the right lobe, and a larger area in the region of the base of the left lobe. Distinct induration of the left seminal vesicle.

Operation May 4, 1923. The vas was sectioned high in the scrotum and stump cauterized, the vas, epididymus and section of the lower pole of the testicle were removed without impairing the circulation to the testicle.

Pathological Report. Globus minor smooth and indurated. Between this and portion of testicle is a softened area and necrotic looking tissue.

Microscopic—the specimen consisted almost entirely of a mass of scar tissue with diffuse lymphatic infiltration and rather frequent giant cells. Necrosis was rare and present only in small areas. The only clue to the derivation of the specimen was the persistance of a few almost unrecognizable tubular structures.

Diagnosis. Tuberculosis.

The patient recovered nicely from the operation and moved to California. He was next seen June 18, 1925, and gave the following history. About six weeks ago was struck in the right scrotum which caused a swelling which has persisted to the present time. Examination revealed a very hard epididymis adherent to the skin. Nothing felt along the cord. Prostate apparently normal. Cold applications to the scrotum was advised for one week. Patient returned June 29, stating that the swelling was larger and that there was no relief from the aching sensation. Left testicle apparently normal. The probable diagnosis of tuberculosis was made and the patient informed as to the effect upon his productivity from an epididymectomy on this side. He elected to have the operation. The epididymis was dissected from the testicle on July 1, 1925, with high section of the vas. Several drops of pus were seen between the epididymis and adherent skin.

Pathological report, microscopic—recognizable features of the epididymis were almost completely lacking, their place being taken by a dense overgrowth of connective tissue surrounding a central necrotic mass, both the connective tissue and the necrotic material being abundantly and diffusely infiltrated with polynuclear leucocytes. In no place could the characteristic zonal relationship of necrosis and surrounding connective tissue characteristic of tuberculosis be made out, nor could giant cells be found at any point in the material.

Diagnosis. While from the history the lesion was evidently originally tuberculosis, evidently all morphological changes brought about by that tissue had been obscured by an acute secondary inflammatory process. The last communication received from the patient was from California, May 11, 1927, at which time he stated that the wound was not completely healed and that there was swelling along the cord. Apparently the surgical procedure did not cure him.

## COMMENT

Tuberculosis of the genital tract is frequently associated with tuberculosis elsewhere in the body, especially the lungs. When primary in the genital tract the focus is problematic. Young states that it starts in the seminal vessels, others that it is primary in the epididymis. It is interesting to note the frequency with which it occurs on the healthy side after correction of the side first involved. It may lie more or less dormant in the epididymis (manifested only by small nodules) for a considerable period of time, and then become very active following direct injury or irritation.

Nodules along the cord are very characteristic of the disease. They were absent in this case. Another interesting point in this case is that two years after the first operation the prostate and seminal vesicles were apparently free from the disease. As the testicle is involved rather late in the course of the disease, it should be saved if possible because of the value of its activity upon the general welfare of the individual.

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### DAUGHTER'S MAKE-UP

Little grains of powder,
Little dabs of paint,
Make our darling daughter
Seem like what she ain't.

# The Nebraska State Medical Journal

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## *ANNUAL MEETING*
## *OMAHA*
## *MAY 14, 15, 16*

## CALL FOR DUES

*The annual dues to the Nebraska State Medical Association are now payable. Send $5.00 plus your county society dues to your county secretary.*

## CALL FOR PAPERS

*If you wish to read a paper before the next annual meeting, please send your name and title of paper to Dr. R. B. Adams, Secretary, Center McKinley Bldg., Lincoln, Neb.*

*A typewritten paper of six pages, double spaced, on ordinary letter head paper will take 20 minutes to read. By this rule you may gauge your paper to be read at the next annual meeting.*

## DELINQUENTS

*Physicians whose dues are not now paid, are delinquent and delinquents are not entitled to either Medical Defense or the Journal. The Journal may reach them by courtesy, but Medical Defense will pass them by.*

## CANCER NUMBER POSTPONED— A LAST MINUTE SHIFT

*When just about ready for press with an all Cancer Number planned during recent months a telegram dated Chicago, from the Nebraska delegates to the American Medical Association in special session asked for some pages of the March Number for the findings of the House of Delegates. This completely upset our best laid plans and necessitated an entire change of program and contents for the March Journal. The Cancer Number will appear April first.*

*It may interest the reader to learn that the "editorial force," is equal to such an emergency.*

## SUMMARY OF REPORT OF HOUSE OF DELEGATES IN SPECIAL SESSION

*Regimentation and lay control of medical practice is condemned.*

*Reaffirms opposition to all forms of compulsory sickness insurance administered by governments or industry.*

*Reaffirms its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all the people, adjusted to present economic conditions, by voluntary budgeting to meet cost of illness.*

*Finds inconsistencies and incompatibilities in report of the Committee on Economic Security, so as to invalidate their findings.*

*Deprecates federal relief administered and controlled by lay bureau.*

*Condemns the social insurance board of the proposed Wagner Bill which fails to specify the character of the personnel to administer functions essentially medical in character.*

*The Epstein Bill of the American Association for Social Security is condemned as vicarious, deceptive, dangerous and demoralizing.*

*Asserts there is no model plan which is a cure-all for economic ills any more than there is a panacea for physical ills.*

*The public welfare must be protected by safeguarding to the medical profession the functions of control of medical standards.*

*Initiative which is vital to the highest type of medical service must not be destroyed.*

*(See first pages in Original Section.)*

## THE LEGISLATIVE GRIND

It is rarely profitable for a monthly magazine to comment on matters before the legislature, for many things may happen between the time of going to press and publication date. A number of matters before the legislature are of interest to the medical profession:

House Roll 477, the Chiropractic bill, is now up for third reading having slipped by our "watch dogs" of the medical committee against their opposition. The new bill gives a new definition of Chiropractic:

"Chiropractic is hereby defined as the science of locating and correcting interference with nerve transmission and expression between brain cells and tissue cells."

The bill provides for a Chiropractic school with a curriculum of thirty-six months in which Anatomy, Hygiene, Orthopedics, Physiology, Chemistry, Symptomotology, Antiseptics, Antidotes, Toxicology, Pathology, Histology, X-ray, Diagnosis, Minor Surgery, Therapeutics, Obstetrics, Anaestetics, Bacteriology, Gynecology, etc., are to be taught.

If these Chiropractors wish to be practitioners of medicine they should register in authorized constituted medical schools.

The Health Insurance bill H. R. 230, introduced by Representative Schroeder, a German Lutheran minister, it is not thought will get very far; but it is absolutely necessary that you bring all pressure to bear that you can on your Representative and Senator to kill it. We are not ready for State Medicine.

H. R. 323, and its companion Bill, S. F. 310, are still in the Committees, but it is very important that active work be done to kill these Bills.

The Compiled Statutes 1929, defines an Optometrist as one limited to the correction of errors in vision by the use of lenses. This new Bill defines him as a person with power to diagnose and alleviate all of the defects of the optical apparatus. This puts optometrists in the class with all drugless healers, with practically no limitations. Other drugless healers are required to pass the Basic Science Board. This Bill gives the Optometrist the right to practice medicine with no such requirements. The bill must be defeated.

H. R. 581, the Chiropodist Bill, allowing them to prescribe appliances or other mechanical means for treatment of the human foot, should be killed.

House Roll No. 323 know as the Public Welfare Bill is a vicious thing and must be squelched. There is absolutely no reason to establish a new State Department and create a new office for a Commissioner of Public Welfare because at the present time we have three departments that are performing their duties efficiently on the matters spoken of in this Bill. Furthermore, if this Bill should pass it will become a political football, placing the Health Department under lay direction. We, as professional men do not need lay people to direct us in what we should do.

These are but a few of the important matters before the present legislature which should interest the physician.

Let us emphasize the point, that to insure the killing of these bills, the profession must do its duty toward that end, by communicating with the representatives and senators from their respective districts. They must not take the attitude of "Let George do it."

## ANNUAL MEETING PROGRAM FOR 1935

While the aims of The Nebraska State Medical Association are the same now as they were when the organization was first perfected, certain changes have become necessary by reason of changed conditions in our economic and social structure to accomplish these aims.

I am sure we are all agreed that we should advance. We must go forward or backward, and the choice largely rests with ourselves. If a concerted effort is made we can advance, but if a small handful of members are expected to carry the load, the results will be disastrous. The officers alone cannot make our organization effectual, they must have the co-operation of every member. The results of our activities portray the character and make up of our organization.

In order to go forward the program committee has tried hard to construct such a program as will attract the attendance of the entire membership. Changes in presentation, no reduplication and a wide scope of subjects are the attempts of your committee. In spite of the handicap of limited funds, many well known and instructive guest speakers have been secured, all of them outstanding in their several activities.

The manner of presenting the papers will result in there being no tiresome waits or delays, for the reason that each paper has been timed as to length and has a definite schedule for its presentation. This will permit members who have to curtail their time to so arrange their attendance that they may hear just the subjects that they are particularly interested in. Your committee also calls your attention to the manner of grouping the different subjects. Study the program and begin now to make your plans for attending the 1935 session.

—Morris Nielsen,
For Program Committee.

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## IRRADIATED EVAPORATED MILK

The importance of milk in the American dietary is unquestioned. Milk is accepted as the most nearly complete food. Producers and distributors of milk, ever ready to improve their product, have been fortunate in that methods for enriching milk with the antirachitic vitamin D have come to the fore during the past few years.

The enrichment of milk with vitamin D is unquestionably the most important advance in the milk industry since the advent of pasteurization. It is therefore little wonder that the evaporated milk industry was quick to use this important improvement.

Many physicians express a preference for evaporated milk because of ease of digestibility by infants due to the fact that evaporated milk has been subjected to heat treatment, and is homogenized. The former process reduces the curd tension and the moisture content and gives a sterile product. The latter breaks up the fat globules and thus makes evaporated milk more easily digestible.

A new and additional reason for its preference by many physicians is the fact that irradiated evaporated milk is now enriched with the antirachitic vitamin D. Fortunately this excellent food product may be purchased in any city or hamlet in the United States. The ultimate user is always assured of a product of constant composition.

Milk, logically, is the most ideal food for vitamin D enrichment—first, because it constitutes the bulk of the diet of infants and growing children; and, secondly, because the ratio of calcium to phosphorus, 1:0.65, is perfectly adjusted. In building calcareous bone the lime salts play a major role. In the presence of vitamin D these lime salts of which such calcareous bone is built are utilized more effectively. Irradiated evaporated milk therefore contains all the factors essential to the normal calcium metabolism essential to bone and tooth formation.

Enrichment of evaporated milk with vitamin D, by direct irradiation with ultra-violet light, was the culmination of a long series of investigations seeking to determine the most practical method. Experimentally it was found that: (1) Milk could be irradiated as fluid milk, then evaporated, with the vitamin D potency still retained; and (2) the fluid milk could be evaporated to a concentration of 2.2, then irradiated.

The latter method was found to be the most practical for the average plant and is the one found in practice today. The flow of the milk must be uniform and in a very thin film. The flow is controlled by a positive type metering milk pump. The uniformity of potency is assured by a constant source of ultra-violet light. The volume of milk treated, energy input, and time the unit was in operation are all automatically recorded on a circular recording Bristol chart. This chart is similar in construction and operation to a pasteurizer recorder except that in the latter we record heat energy, while in the former electric energy used for operating the ultra-violet generator is recorded.

In order to have a further check on the vitamin D potency, samples from each plant processing irradiated evaporated milk are tested each month on standard rachitic rats. It so happens that evaporated milk is concentrated to slightly less than half its former volume. Hence, when modified 1:1 with water, a milk of 4% fat results, comparable to ordinary fluid milk in composition. Physicians usually follow a formula similar to this with slight modifications, depending upon the caloric intake needed and the age of the individual.

If irradiated evaporated milk is reconstituted as indicated and the potency expressed on a quart basis, we find approximately 50 Steenbock, or 135 U.S.P.X. units of vitamin D per quart of reconstituted milk, which is the same range of potency as for irradiated fluid milk. In unirradiated milk the average vitamin D potency is in the neighborhood of 5 to 6 Steenbock units per quart.

Increasing the vitamin D content of evaporated milk by direct irradiation enriches this essential food, otherwise deficient in vitamin D, so that it provides a valuable additional nutrient, the antirachitic vitamin D. Because of its widespread use, distribution, and excellent ratio of calcium and phosphorus, the enrichment of evaporated milk with vitamin D by the Steenbock process of ultra-violet irradiation is recognized as a step forward for the evaporated milk industry and its products.

—H. T. Scott, Ph. D.,
Director of Biological Research,
Wisconsin Alumni Research Foundation.

## IN APPRECIATION OF MEDICAL STUDENT LOAN FUND

"Enclosed please find my check for $106 to cover interest and principal on the remaining portion of the student loan.

"I am very happy to be able to return this money so that another needy Medical Student can be aided. I wish to extend my sincere thanks to you and the other members of the committee. I shall never forget the kindness extended to me as long as I practice medicine.

"Had it not been for this loan and * * * * I would have been forced to stop school, thus might have lost a number of years of professional life."

"Professionally yours,
————————."

Thus we see this Fund, established a few years ago by the Nebraska State Medical Association with a paltry $500 and annual accretions of like amounts is bringing results and the gratitude of medical students aided thereby. The amounts, although small, show the paternal interest of the organized profession in the worthy and needy students and reflect glory on the profession.

## MEDICO-LEGAL

### POST-TRAUMATIC FATAL PULMONARY EMBOLISM

The tragedy of postoperative fatal pulmonary embolism is well recognized, but it is the general impression that post-traumatic thrombosis and subsequent embolism is rare. The possibility of thrombosis and embolism after trauma is greater than it is usually thought to be. We have recently encountered such cases and others are appearing in the literature.

McCartney(1), at the University of Minnesota, in 9275 autopsies found 73 deaths from pulmonary embolism. Of this group 15 were post-traumatic, and 8 were post-traumatic with operation in consequence of the injury. Up to 1926 he collected 119 additional cases from the literature. Simple fracture was present in most instances, rarely a compound fracture. Often there was only minor bruising of tissues. The thrombus always developed at the site of injury. The interval between trauma and embolism was longer than that between operation and embolism. The age distribution was about the same as in other forms of embolism. Injuries followed by embolism usually involved the lower extremities.

Vance's(2) experience with 90 cases on the Medical Examiner's service of New York City from 1924-34 indicates that the number of cases has increased recently. Auto injuries and falls were the usual casualties. Fractures of femur, of tibia and fibula, miscellaneous injuries of lower extremities or injuries elsewhere, were the most common lesions produced by the trauma.

Death following pulmonary embolism may be immediate or delayed. If there is complete obstruction of the pulmonary artery, the left ventricle empties the blood out of the pulmonary circuit and abruptly ceases work, for it is empty. Unconsciousness follows from cerebral anemia, and a few gasps indicate that the respiratory center is deprived of blood. The right heart quickly dilates because of obstruction to its outlet and because the coronary artery supplying the right side is empty.

If the obstruction is only partial, delayed death follows from reduced effective blood volume, with the usual indications of impending circulatory failure. Sometimes right heart failure is a prominent factor in delayed deaths.

A typical case which we encountered recently, may be summarized as follows:

A 50 year old man was kicked on the left leg by a steer. About 10 days later the knee and leg swelled. Attempts were made to manipulate the leg and knee, but the swelling continued. He persisted in trying to walk, in spite of advice to the contrary. Several days before his death he complained of smothering sensations and "pleurisy pains." Following a large evening meal he dropped dead on the 112th day after injury. Necropsy revealed massive pulmonary embolism and large emboli in the right auricle and inferior vena cava; small hemorrhagic infarcts, lower lobe, each lung; organizing thrombosis of left posterior tibial, popliteal, femoral, and external iliac veins; subacute traumatic arthritis, left knee; partially healed infarction of left ventricle.

Obviously medicolegal knowledge is essential in solving such cases. There is often room for difference of opinion as to the cause of such a thrombosis. When there is severe injury, there is a more evident connection, but when the injury is slight, the relation is more difficult to establish.

—B. Carl Russum, Omaha.

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## NEW '34 MODEL

Among those lost in the strife and storm
Is the sweet young thing with the boyish form.
For the fates, all say, alas, alack,
For the slim and straight, that the curves are back.
And diets now, the styles decree,
Will put bumps where bumps ought to be.

—St. Paul Pioneer Press.

## THE PRACTITIONER OF THE FUTURE

James B. Herrick, Chicago (*Journal A. M. A.*, Sept. 22, 1934), points out that whether a physician is to be successful depends in a measure on his native endowment and to some extent on chance. The possessor of knowledge, even though it is accurate and encyclopedic, is not necessarily a good practitioner. The reason may go back to the man's choice of a vocation. Some men are not medically minded. There are those who think that success as a practitioner will come only if much time is devoted in undergraduate and later years to research. Medical research and practice differ in qualifications of workers, in objectives and in methods. The aim of research is to advance knowledge by discovery of the new. Practice is the application of knowledge already known. Every question of diagnosis is for the clinician a research problem. Unless the physician is inspired by the activating curiosity to know, to find out by close observation by comparison with his own experience and that of others, by use of laboratory aids or by experiment, he is an inefficient practitioner, non-progressive and doomed to failure. Too implicit reliance on laboratory examinations may cause sound clinical judgment to shrivel up from disuse. Besides, unless there is extreme watchfulness, the laboratory may develop the impersonal in the doctor at the expense of the personal. The true physician must possess a dual personality, the scientific toward disease, the human and humane toward the patient. The physician learns by study, he becomes proficient by experience. He profits by his own mistakes and those of others. The patient is the most valuable textbook for the undergraduate student and the graduate doctor. The lower schools, universities and professional schools are seriously concerned with what is the best preparatory course for the doctor. How may fewer but better doctors be trained? If good and efficient service is rendered by the ordinary practitioner as an individual or as a member of a group there will be fewer quacks, fewer cults, fewer semi-charitable organizations supported, or even run, by philanthropically minded laymen or recalcitrant physicians. The graduate of today, while he may know relatively less than the doctor of fifty years ago is, absolutely, far better informed than his predecessor. The practitioner realizes that he must know still more. He is eager to learn. The hard work in the local society in order to be most effective should be done more by members and not so much by invited guests. The status of the practitioner will be determined largely by what he himself does rather than by what is done for him by others. What he gets out of practice will be in proportion to what he puts in. A result of this personal effort on the part of the doctor will be that he will become more self confident, will lose some of his inferiority complex. His patients will sense this and go to him as of old for advice or for treatment. He will dare of himself to test a knee jerk, to assess at its real value a heart murmur, even to tell whether tonsils should come out or stay. He may possibly be so thorough as to make a rectal examination and courageous enough to pass judgment on the results, thus depriving the consultant of one of his cherished prerogatives and most fruitful sources of income. Specialism and research are necessities and have come to stay. And so has the practitioner: but only when, as, and if, he is qualified. There will surely develop in the future a competent practitioner, who, with integrity of character, with ideals of medicine as a profession and not a trade, with mind well stored with knowledge, with skill to apply this knowledge in a large proportion of cases of disease, with consciousness of his limitations, with readiness and ability to advise when and where expert help may be obtained, with good judgment and keen powers of observation sharpened by experience at the bedside and at the necropsy table, is worthy to be the family doctor or adviser, with all the traditional privileges and rewards that come from the personal relation of the old time doctor with the family—esteem and high standing in the community, the confidence and affection of his patient.

## EDITORIAL PARAGRAPHS

Much ado —.

The actual paid membership of the Nebraska State Medical Association for 1934 was 1,110.

We are amazed at the advent of the Dionne quintuplets, but the Greek goddess Actemia gave birth to fifty daughters, all at one time.

On January 25th Lea and Febiger, Philadelphia medical publishers, celebrated the completion of one hundred and fifty years of continuous activity as publishers.

Tuberculosis infection tests made in Lincoln on 1,154 students of schools, revealed 207 reactors. Of the 189 x-rayed 22 were found to have primary infection.

J. Shelton Horsley is quoted as saying we should quit worrying about finding a cure for cancer, but should search for new methods of early diagnosis so that the efficient well known cures can be promptly applied.

A small number of cases of meningitis occurred in Plattsmouth about the first of February. Prompt measures were taken to prevent the spread of the disease and at last reports the number of cases was limited to three.

The hospitals for the insane in this state are badly crowded we are told and it is suggested that on this account these institutions should not take pay patients, a custom that has prevailed perhaps since such institutions came into being.

It is stated that in one of the state institutions 60% of patients in the basement wards have tuberculosis and that in other wards 42% have tuberculosis. What further argument is needed to prove the need of additional buildings and better housing?

A friend with an ear attuned to the present needs suggests that there should be under the FERA set-up in each county a medical superintendent or supervisor with two advisers, who shall supervise medical service of the county and shall allocate pay according to service rendered.

Malpractice suits have decreased appreciably in Nebraska during the past year. The inflexible attitude of the medical advisory committee toward suits brought against members of the association and the present economic stress which leaves most people on the verge of bankruptcy may account for this.

The department of agriculture is continuing its efforts to find a safe and effective substitute for poisonous spray materials, but lead arsenate is still considered essential to orchard management. The Food and Drugs Act imposes on the producer the obligation to reduce the residue to the lowest possible point.

The American Neisserian Medical Society was founded on June 12th, 1934. It is dedicated to the promotion of knowledge in all that relates to the gonococcus and gonococcal infections, that there may be attained improvement in the management of gonorrhea and a reduction in its prevalence. There are 115 charter members. Dr. Oscar F. Cox, Jr., Boston, is secretary-treasurer.

A plan to furnish medical care to lower income classes at a price they can afford to pay was accepted by the Omaha-Douglas County Medical society, February 12. The plan provides establishment of an Omaha-Douglas county central health service to work with doctors and case workers for social agencies in deciding the fee patients can afford to pay.

Wholesalers proper who did 40.5% of total wholesale business in 1933, are estimated to have increased their dollar sales to $14,710,000,000 in 1934, from $12,959,000,000 in 1933, or a 13.5% increase, according to a statement made public today by C. T. Murchison, Director of the Bureau of Foreign and Domestic Commerce, based upon estimates compiled in the Wholesale Trade Section of the Bureau by S. L. Kedzierski. Let us hope.

Supported by at least three members of the Lincoln city council, the public health advisory council will take steps looking to the passage of a bill in the legislature to enable the consolidation by counties and cities of their public health activities, it was decided at a meeting of the advisory group. In the event there is no chance to pass the measure, which was introduced by Senator Van Kirk of Lancaster county, a house measure providing for consolidation in Douglas and Lancaster counties will be supported.

A new tuberculin, free from foreign protein, has been in use since last April in the testing of cattle for tuberculosis, the U. S. Department of Agriculture reports. The new product is materially superior to the tuberculin formerly available. Officials point out that the improvement came at a particularly fortunte time, since tuberculin testing has been increased as an emergency and drought relief activity, and more cattle have been tested in the last 8 months while the new tuberculin has been available than in any previous similar perior of the campaign. Dr. M. Dorset, of the Bureau of Animal Industry, says that enough of the new tuberculin is being produced to test more than 18,000,000 cattle annually.

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## "AS ITHERS SEE US"

### THE DOCTOR AS A BUSINESS MAN

It is a common saying that a doctor is a poor business man. Perhaps he usually is, but not for the good reason that he could not be a good business man if he so desired. With his education, ability and knowledge of human character he should have the advantage of the average business man. Be that as it may many people take advantage of the doctor's pre-occupation and try in devious ways to cheat him of what is his due.

We wonder which they would really prefer, a doctor who is strictly a business man; one who does his work primarily for the fee involved, who spends his leisure time figuring accounts and how to collect them, who will not come unless you have cash.

Or would they prefer the man who is primarily a doctor and only incidentally a business man. Who comes to your house to care for the sick and often forgets your bill until his creditors begin to crowd him. Who spends his leisure time reading and keeping up with the progress of medicine, attends medical meetings and begrudges the time he necessarily has to spend on his accounts. Who will take it on the chin and smile when you tell him of selling your hogs and paying everyone you owe except him. You throw out your chest and say "I don't owe another man in the town," and do not stop to think that the M. D. was rightfully due his share. You may give him produce and merchandise or work and hike the price and think he doesn't know the difference because he says nothing.

After so long a time one of three things must happen. (1) The doctor decides to move to some place where he hopes his services will be appreciated. (2) He settles into a rut, cutting down his studying, goes to no more meetings, attends no more schools, cuts out his medical journals and books and gradually fails to keep up with the progress of medicine and you have an inferior or mediocre practitioner simply because you do not pay him enough to keep up. (3) The doctor goes hard boiled and business-like. Will go to see your sick only if you have the cash. Will spend his time looking up your credit rating and seeing that he gets his when his time could be much better occupied with the diagnosis and treatment of the sick.

So you see it is a community problem and not altogether an individual one. In order to get prompt, efficient medical service it must be paid for. The doctor's overhead is relatively large and must be paid for in cash. It is poor business both for the doctor and community to cut down on equipment. It is embarrassing both for the doctor and patient to have to talk money when you have your hands full caring for sick people. Times have been hard and will be at least for another year, but if everyone does their part, we can see it through.

—Homer (Nebr.) Star.

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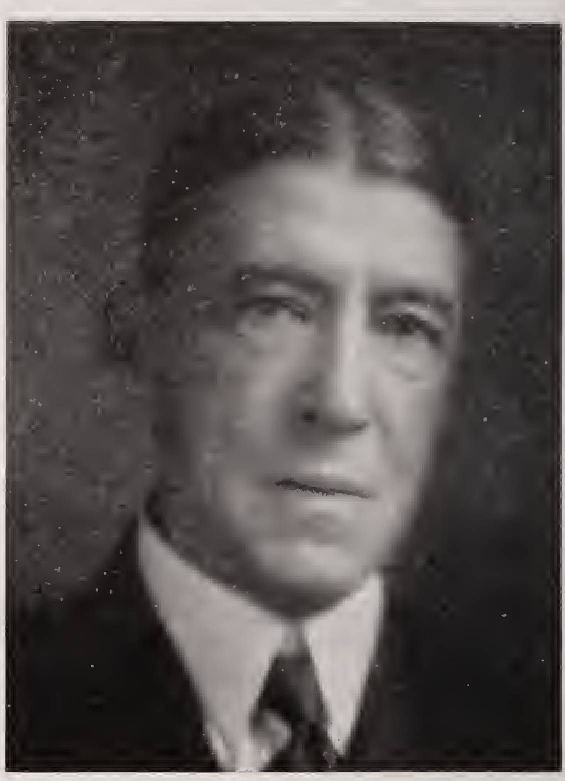
## OBITUARY

**John E. Summers,** Omaha; native of Old Fort Kearney, Nebr.; son of an army surgeon; College of Physicians and Surgeons, New York City, 1881; acting assistant surgeon in the United States Army at frontier posts in Wyoming for two years; resigning, he spent two years in European study, mostly in Vienna; located in Omaha in 1885 and almost immediately became widely known as a surgeon and was appointed surgeon-in-chief of Clarkson hospital, a position he held through all the years; chief surgeon of Douglas County hospital from its inception until 1931, about forty years; sometime on the staffs of Immanuel and Wise Memorial hospitals and chief of staff of each; professor of clinical surgery of the Nebraska University College of Medicine and of its immediate predecessor, the Omaha Medical College, ever since he located in Omaha; a liberal contributor to surgical literature; author of "The Modern Treatment of Wounds," published in 1889; contributor to Binnie's Treatise on Regional Surgery; president Nebraska State Medical Society, 1895-6; sometime president of the Western Surgical Association, also of the Missouri Valley Medical Society; vice president of the American Surgical Association, 1916; active in other local and regional medical societies; member, Societe Internationale de Chirurgie; charter member and Fellow, American College of Surgeons and within recent years, Governor of the College for Nebraska; outstanding pioneer surgeon of Nebraska and the middle west, known throughout the United States and in Europe; a man possessed of an uncanny sense of surgical values; recipient of the degree, LL. D., from the University of Nebraska a few years ago; died February 7, 1935, from a heart attack, aged about seventy-seven years.



JOHN E. SUMMERS

A widow and two sons survive.

**Edward Tanner,** Battle Creek, Nebr.; native of New York; New York University Medical College, 1879; in practice for one year at Danville, N. Y., and a short time at Norfolk, Nebr., before locating at Battle Creek in 1881, where his entire career since then was spent in active practice; one of the most beloved of physicians and most successful—"no one was ever heard to speak ill of Dr. Tanner"; in practice (in a restricted sense) until shortly before his death; member, Nebraska State Medical Association for probably fifty years; sometime president of the Elkhorn Valley Medical society, and also an early president of the Madison County Medical society; died January 28, 1935, aged about eighty years.

A widow and daughter survive.

**G. A. Nieman,** Clay Center (retired); Homeopathic physician, college data unavailable; in practice at Wayne for a number of years until about twenty-five years ago, when he moved to Des Moines; died at the home of a son at Clay Center, January 25, 1935, aged eighty-seven years.

**Royal C. Wood,** Omaha, Nebr.; Rush Medical College, 1889; formerly in practice at Benkelman; in practice in Omaha in recent years; died from carcinoma of the stomach, January 24, 1935, aged about seventy years.

## AUXILIARY NEWS NOTES

On Tuesday evening, January 15, 1935, the members of the Lancaster County Medical society entertained their wives at dinner at the University club. Following the dinner Dr. S. G. Zemer, president of the county society, gave a word of welcome to the guests and introduced Mrs. Everett Angle, president of the Auxiliary. Dr. Roy Whitham, who was in charge of the arrangements, then introduced Dr. Marshall Neely and Mr. Eberly who gave a beautiful musical program of selections for two pianos. The remainder of the evening was spent informally.

About seventy-five attended the affair.

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A regular meeting of the Woman's Auxiliary to the Douglas County Medical Society followed by a program and tea was held at two-thirty the afternoon of Tuesday, January 29, 1935, at the home of Mrs. J. Jay Keegan.

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While the doctors of the Tri-County Medical Society held their annual Christmas party, the Auxiliary held a meeting in another room in the St. Francis hospital, Grand Island.

During its business meeting, the Auxiliary voted to give $5 to the Christmas Cheer fund, while Mrs. Benton, of Central City, extended an invitation to the Auxiliary to hold its next meeting at her home.

There followed an exchange of toys, each member striving to guess what was given her. These toys were later turned over to the hospital to be distributed to children confined there.

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Eighteen ladies of the Tri-County Medical Auxiliary were entertained at the apartment of Mrs. Carl Sherfey at the state Soldiers' Home, Grand Island, on January 31, 1935, while their husbands attended a regular meeting of the medical society, at the St. Francis hospital. An oyster supper was served at seven o'clock. Floral bouquets of calendula, combined with orange tapers, formed attractive table appointments. After a short business session, bridge was a feature of the later evening. Hostesses for the evening were Mrs. R. C. Woodruff, Mrs. W. D. McGrath and Mrs. Sherfey. Mrs. Charles Cummings, matron at the institution, was an invited guest. Out of town members present were Mrs. Henisch, of St. Paul; Mrs. Holmes, of Wolbach; and Mrs. Brown, of Central City.

## THE INDISCRIMINATE USE AND RENTAL OF RADIUM

Resolutions adopted by American Radium Society at annual meeting, Cleveland, June 12, 1934; also adopted by American College of Radiology, June 12, 1934.

WHEREAS it is now recognized that radium has been demonstrated to be of definite value in the treatment of disease, and

WHEREAS some states and many communities in the country have little or no radium available, and

WHEREAS funds are not always available for the purchase of suitable preparations of radium for use by those physicians who are qualified in radium therapy, and

WHEREAS we recognize that radium is an agent quite as potent for doing harm as for doing good when used without sufficient skill or training and with the hope of protecting the uninformed public from serious and irreparable injury from improper and insufficient treatment.

BE IT RESOLVED that we consider it improper, unethical and detrimental to the science of Radiology and to the good of suffering humanity for commercial laboratories to attempt to give advice or directions as to the use of radium in the case of a patient whom the person giving that advice has not even had the opportunity to examine. In other words, it is just as difficult to give such advice and directions as it would be for a surgeon to give directions for the use of rented surgical instruments so that an untrained physician might attempt an operation. Various commercial companies advertise both in the journals and through the mails, medical advice for the purpose of making sales or renting radium or radon. This places these corporations in the field of practicing medicine.

BE IT RESOLVED that the same criticism be applied to institutions which rent or furnish their radium to those members of their staff or outside of the staff who are unskilled in radium application.

RESOLVED that the same criticism applies to many individual owners of radium.

RESOLVED that we regard the approval of the National Board of Radiological Examiners as the minimum standard for those assuming the responsibility for using radium. We recommend as wide publicity of this board's existence and approval as is possible to the public, consistent wth ethical practices, as the most effective safeguard which can be afforded them.

RESOLVED that we recommend the refusal of advertising matter in national and state journals when the companies concerned are advertising a medical consulting service or are advertising such service through the mails in connection with their sale or rental of radium.

RESOLVED that we disapprove of any doctor's acting as a consultant to a commercial company carrying on such a campaign of public or private advertising and that we consider such an association sufficient grounds to warrant disbarment from the approval of the National Board of Radiological Examiners.

RESOLVED that we recognize the ethical commercial company as a necessity. It is the advertised consulting service that is at fault. It is recognized that such restrictions on the advertising of a medical service will in no way hamper properly qualified radium therapists in obtaining adequate supplies of radium or radon for the purposes in which they are qualified to use it.

RESOLVED that we approve an informal medical consultant for the guidance of those commercial companies who refrain from advertising such professional service, either publicly or privately and that in such case their informal consultant be one approved by the National Board of Radiological Examiners.

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The following resolution was presented by the Executive Committee and adopted unanimously by the American Radium Society, Cleveland session, June 12, 1934.

WHEREAS, it has been proven that radium and x-rays, when used properly, and in sufficient quantity, is efficient in the treatment of cancer in certain locations, and

WHEREAS, there is a general fear in the public mind from x-ray or radium burns, which because of this fear, prevents competent radiologists from using sufficient radium or x-ray to produce the best results.

BE IT RESOLVED that we as radiologists recognize that in the treatment of malignant disease, it is often necessary to carry the treatment on to the extent of producing a violent reaction in the surrounding tissues, which may cause the skin to peel, and blisters to form, in order to give sufficient treatment to overcome the malignant disease. We believe, therefore, that it is justifiable to produce a second degree radiodermatitis when necessary.

## THE SOCIETIES

A **Platte County Medical Society** meeting was held January 22 at Columbus. Dr. Warren Thompson, Omaha, spoke on "Some Gastro-Intestinal Problems," and Dr. Russell Best, Omaha, on "Some Lesions of the Anus, Rectum and Colon." The program was preceded by a 6:30 dinner.

The **Phelps County Medical Society** at a recent meeting elected Dr. Guy Clark of Bertrand, president, and Dr. Rachel Long, Holdrege, as secretary-treasurer.

The **Webster County Medical Society** was entertained at Red Cloud by the Drs. E. V. and Jane Lewis, January 27. This was the regular business and social meeting and the guests were also shown through the new hospital.

The **Nemaha County Medical Society** held a meeting at the offices of Dr. Lutgen, Auburn, January 30, practically all the physicians of the county being present. Economic conditions were discussed. Councilor W. R. Boyer of Pawnee City was present.

The **Hall-Merrick-Howard County Medical Society** met at St. Francis hospital, Grand Island, February 7. Chronic Sinusitis and Tonsils were discussed by Dr. W. P. Wherry, Omaha, and Dr. Ben Greenbaum of York.

Nine doctors from **Cheyenne, Deuel and Kimball Counties** were guests of the Kimball hospital when the monthly meeting was held in Kimball, February 5. Dr. S. O. Harris of Chappell was relected president; Dr. Robert Hook of Lodgepole, vice president; Dr. H. A. Blackstone of Gurley, secretary-treasurer, and Dr. S. O. Harris and Dr. A. R. Everett were elected as delegates to the state convention. Dr. J. R. Taylor of Sidney read an interesting paper on surgical treatment of ulcers of the stomach. After the meeting the doctors were served refreshments at the Maginnis hotel.

The **Custer County Medical Society** met at the Arrow hotel, Broken Bow, January 25, with Dr. F. A. Burnham, president, presiding. Ten doctors and their wives from over the county enjoyed a dinner together. Afterwards Dr. Theo. Koefoot, Dr. Burnham and others, made scheduled talks.

Dr. Burnham of Arnold was reelected president and Dr. R. D. Bryson of Callaway, secretary.

About twenty-five doctors, members of the **Cedar, Dixon, Dakota, Thurston and Wayne County Medical Society,** met at the Logan hotel, Emerson, January 25. Following a dinner, a program was presented by visiting doctors from Sioux City. Dr. L. J. Frank, Dr. R. H. McCloud, Dr. R. N. Larimer, Dr. J. E. Dvorak, and Dr. L. E. Pierson were speakers presenting allied subjects dealing with allergy, including recent tests and discoveries in the field of medicine and research. A short business meeting was held after the program.

The January meeting of the **Sixth Councilor District** was held the evening of January 21 at the McCloud hotel in York. Dinner was served to 33 members. Following the dinner a short business meeting was held and a motion was made by Dr. King of York that Gov. Cochran be petitioned by the society to reappoint Dr. Bartholomew as Director of the Department of Public Health. The motion was voted unanimously and the petition has been sent to the governor.

The following program was then presented: "The Medical Profession," Dr. B. F. Bailey, Lincoln; "The Tonsil," Dr. B. N. Greenberg, York; "A Reclassification of Albuminurias for Clinical Use," Dr. Lucien Stark, Norfolk.

The **Richardson County Medical Society** held a meeting and dinner at the home of Dr. and Mrs. H. R. Miner, Falls City, January 16.

Among the speakers were Drs. Clyde Moore, Charles R. Kennedy and W. S. Moody, all of Omaha. Another speaker was L. I. Frisbie, agent of the extension service of the state agricultural college. Mr. Frisbie talked on 4-H work and the medical profession's part in health examinations.

The **Burt, Dodge and Washington County Medical Society** met at the Hotel Pathfinder, Fremont, January 28. Motion pictures were shown by a representative of the Petrolager company and Dr. D. M. Bloch, Arlington, gave a paper.

The **Southwestern Nebraska Medical Society** held a meeting in McCook, February 14, and following the banquet at the Keystone hotel, Dr. Floyd Clarke, professor of Pediatrics of Creighton University, gave a paper on "Nephritis in Children," and Dr. G. W. Dishong, professor of Psychiatry of Creighton University, gave a paper on "The Nervous Patient and the Physician." There were about thirty-five doctors in attendance.

## HUMAN INTEREST TALES

Dr. A. E. Smith, formerly of Gordon, has located at Harrison.

Dr. S. P. Wallin, formerly at Snyder, has moved to Cheyenne.

The city has refinanced the Warren Memorial hospital at Friend.

Dr. Mildred J. Buzza, formerly of Dannebrog, has located at Snyder.

Dr. Lincoln Riley, Wisner, spent ten days recently in San Antonia, Texas.

Dr. E. E. McMahon has been named county physician of Douglas county.

Dr. M. H. Carrig, formerly of Norfolk and Stuart, has located at Bloomfield.

Dr. Ben Ewing, Omaha, is minus an overcoat, stolen from his office in the Medical Arts building.

Dr. F. J. Kalal has moved from Creston to Clarkson, where he was in practice some years ago.

Dr. Clark Spivy, Anselmo, is the author of a book just announced, "The Coming of the Peasant."

Dr. F. W. Heagey, Omaha, has been elected president of the Child's Welfare association of Omaha.

Dr. and Mrs. A. C. Stokes, Omaha, returned from the Orient recently full of praise for the cordiality of the Japanese. The doctor was a delegate to the meeting of the International Red Cross, held at Tokyo.

Dr. and Mrs. I. C. Wood, Omaha, have added $10,000 to the endowment fund of the Methodist hospital, Omaha.

Dr. Herman Jahr, Omaha, received a cash prize for an article in Medical Economics, entitled "The Threat to State Medicine."

As a part of a vocational guidance program in the Nebraska City high schools, Dr. D. D. Stonecypher gave a talk on the practice of medicine.

Dr. S. A. Campbell, Norfolk surgeon, was elected president of the Sioux Valley Medical society at a recent meeting held in Sioux City. The next meeting will be held in Sioux Falls.

Dr. Myron Heyn, Detroit, chief of laboratory service of Frederick Stearns and Co., recently lectured to the University of Nebraska College of Medicine on research and was given a banquet at the Fontenelle.

Dr. D. T. Quigley, Omaha, gave a lecture on "Diet" before the Richardson County Medical society, the Business and Professional Women, the Legion Auxiliary and the Woman's Auxiliary, February 15. The program was sponsored by the Woman's club.

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# THE CAUSATION OF CANCER*

H. E. EGGERS, M. D.,
Omaha, Nebraska.

Several years ago the writer had occasion to compile a review, as complete as possible, of the published investigations into the etiology of cancer. Appearing as it did in a special journal, it was of too detailed character to be of much particular service to any but those specializing in the subject. I propose here to summarize, very briefly, the content of that review, and to add an equally short survey of the most important work that has appeared since its publication.

The various theories of the causation of cancer may be classified into: (1) That of a parasitic cause; (2) its inception as a result of irritation, usually of chronic character; (3) its origin in nuclear aberrations; strictly, these are for the most part theories of mechanism rather than of primary cause, although some of them, notably that of Boveri, include also the latter; (4) that of hereditary origin; and (5) its origin in some perversion of metabolism.

With reference to parasitism as the cause of cancer, it may be stated with some positiveness that, however appealing such an explanation may be in some particular case, there is absolutely no ground for the belief that this is a general explanation, nor for the assumption that a specific parasitic cause is responsible. It is true that the development of cancer is in some cases associated with the presence of certain parasites, and that there is every reason to regard these organisms as, in the general sense of the phrase, causes of cancer. A number of animal parasites come into this group,—most notably, with humans, the several species of Schistosomes, though others as well appear to cause human cancer, and a much wider variety has been associated with cancers of lower animals. Obviously, however, such infestations are comparatively rare, and the responsible parasites cannot be regarded as specific causes. The same is true of a number of cancer-causing bacteria that have been isolated from cancers; they are not constantly present, and cancer, both in man and lower animals, develops in circumstances that would appear to preclude absolutely their activity. In view of the diversity of organisms that have been found to be cancerogenic, one is tempted to regard these several unallied parasites as possible carriers of some subparasite, as yet unidentified; a view which has been advocated most enthusiastically by Borrel. In the case of certain fowl tumors, of the so-called Rous type, a filterable agent, detectible only by its action, is definitely involved in tumor production; efforts to find a similar agent with mammalian tumors have given indecisive results, and in general it may be remarked with reference to this theory that cancers have been caused experimentally, with certain types of irritation, in circumstances that would exclude with some certainty its possible application.

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*From the Department of Pathology, Nebraska University College of Medicine.

As regards chronic irritation, that has proved to be the most useful tool yet found for the causation of cancer in strictly experimental conditions. A wide range of irritants has yielded to the sufficiently patient laboratory worker results clearly indicative of their role as true cancerogenic agents. Historically, the x-ray was the first of these to give successful laboratory results; next came coal tar, and in the quarter century which has followed the first experimentally induced x-ray cancer, a whole list of such agents has been developed: Tars, not only from coal, but from a wide variety of other sources; a number of pyrogenous products other than tars; arsenic and indol, both working largely as systemic, rather than local, agents; repeated thermal irritation, both of heat and cold; irradiation, as by radium and by ultraviolet light. With most of these, laboratory study followed on clinical observation, and the former was valuable principally in demonstrating the cancer-causing effect in controlled conditions. Indeed, a number of agents whose cancerogenic effect may be regarded as established clinically, have not as yet yielded successful results in the laboratory. This effect of tobacco has been obtained on lower animals by one worker only; the same is true of the intermediate aniline products, with which one observer has finally produced vesical cancer in the rabbit by means of the fumes of naphthylamine; betel cancer has not as yet been reproduced; sunlight, almost unquestionably acting as a cancer-causing agent in some cases of human cancer, is without laboratory confirmation, and so too is mechanical trauma. On the other hand, the facts established primarily by clinical experience have in some cases submitted to rather refined analysis by laboratory methods; witness the identification of naphthylamine as at least one of the agents responsible for the so-called "aniline cancers"; the brilliant identification by Kennaway and his co-workers of the active substance of pyrogenous products in the polycyclic hydrocarbon compounds; and the tremendously significant work of Fischer-Wasels on the cancerogenic action of arsenic and indol.

But, however important such irritant agencies may be as causes of cancer, these, too, are open to the objection that they are not universally present, and that cancer may indeed develop in circumstances in which their effect can be discounted almost absolutely.

The theories of nuclear aberration I shall dismiss rather briefly. With the exception of Boveri, the advocates of theories along this line based them almost exclusively on morphological grounds which careful investigation has shown to be erroneous; and Boveri's theory, which is to the effect that loss of growth regulation is due to losses of chromatin material, becomes simply a theory of mechanism if we accept his postulate that such losses may be caused by irritants of cancerogenic type.

The significance of heredity as an etiological factor in cancer is unquestionable, particularly in view of the painstaking work done with mice by Dr. Maud Slye, that of Little, and a number of other investigators, who, while they may differ as to the Mendelian character of the elements involved, have established beyond the possibility of doubt their importance. However, in the inception of human cancer heredity would seem to be only occasionally an element of primary importance. A socially valuable, but biologically questionable, habit of man is largely responsible for this, that of practically enforced cross-breeding. Even so, occasional families of exceptional susceptibility to cancer occur, the most extreme instance perhaps being the one discussed by Warthin, in which among the offspring of a cancerous great-grandfather, there was an incidence of malignant disease of 18% in his offspring, and of 31.8% of those who had attained adult life. Despite occasional families of this character, practically the occurrence of cancer in one's family tree can be utterly disregarded; a number of statistical studies have shown that the fact that both one's parents have died of cancer, makes it no more probable that oneself will be a victim.

A tremendous amount of work has been expended on studies of the metabolism of the cancer cell, much of it with entirely negative, but none the less valuable, results. It has been shown that constant changes in protein metabolism are in all probability of minor character, the only one of any apparent significance being an alteration of arginin utilization. With fat and lipoid metabolism, too, the changes are of minor and largely inconstant character, although there are suggestions that the latter may play an at least occasional role, since Kennaway has recently indicated a chemical sequence by which cholesterol may yield, by successive transformations, substances akin to those he has identified as responsible for the cancerogenic effect of the tars. The most significant changes appear to be concerned with the phenomona of cellular oxidation and carbohydrate utilization, which, although purely quantitative in character, permit the cancer cell to derive a major source of energy from the anoxybiotic cleavage of dextrose into lactic acid. To what extent this phenomonon, discovered by Warburg, may be dependent on other less evident metabolic alterations, we at present have no knowledge, but it is sufficiently outstanding to justify the surmise that the fundamental cause of cancer is actually a matter of metabolic abnormality, which in turn may result from a diversity of direct agents.

Of the more recent work that of Fischer-Wasels deserves some detailed discussion. His laboratory has been interested principally in the study of the indirectly active agents, such as arsenic and indol. Several years ago he announced the successful causation of skin cancers by means of Scharlach R, a dyestuff long known to clinicians as a stimulant to epithelial regeneration, though when used alone it had never been known to occasion malignant growth. It was only by the prolonged administration of arsenic in small doses to his experimental animals that this effect was achieved. This laboratory observation again reproduces a matter of clinical observation, since the so-called arsenic cancers observed in individuals who had long been subjected to the internal administration of arsenic, usually for therapeutic purposes, develop in sites of extraneous irritation, usually on the palms and soles. A study of the tissue metabolism of intoxicated animals revealed the interesting fact that they showed in the skin particularly, a shift of metabolism toward the type of carbohydrate cleavage reported by Warburg. Partly from this and similar observations, Fischer-Wasels has evolved what is today our most satisfactory theory of cancer causation, in that it reconciles all hitherto discrepant factors. According to this theory, the development of cancer depends on the concommitant presence of two factors, one a local site of potential or actual tissue regeneration, especially if this is of prolonged, chronic type; the other a matter of constitutional susceptibility, which he would identify tentatively with the metabolic shift of the Warburg type. Either of these elements may be acquired, the local site by irritation, infection, etc., the general susceptibility by arsenic intoxication, as he has shown experimentally, presumably by indol intoxication and possibly as well by other agencies. Also, either element may be of hereditary or congenital character, the local site, for instance, being one of embryonic displacement or vestige; the general susceptibility, a matter of inheritance.

If this theory is correct, there are four possible combinations which may result in the appearance of cancer. It may be entirely of hereditary or of acquired character, or may start in an hereditary anlage with the later acquisition of constitutional susceptibility, or, in an hereditarily susceptible individual, may appear at a site of local traums.

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# IMPORTANT LINES OF ATTACK UPON CANCER PROBLEM*

B. CARL RUSSUM, M. D.,
Omaha, Nebraska.

The death rate from cancer in America is increasing. In 1929 the condition ranked third as a destroyer of mankind and was responsible for one in every twelve deaths. For every death there are approximately three living patients, so that we now have about 500,000 living people with cancer. The cause and prevention of this dread group of afflictions challenges the medical profession.

The two most important lines of attack upon the cancer problem, are, in the order of importance:

1. Research.
2. Educational.

## RESEARCH

Medical literature teems with isolated reports of observations and experiments upon phases of the cancer problem. We await the vision which will take these observations and formulate hypotheses capable of experimental proof by technical methods ready at hand.

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*From the Department of Pathology, The Creighton University School of Medicine, Omaha, Nebraska.

For research we need brains, money, and time. Research in cancer is worthy of our highest type of brains. According to Wood(1) there are less than fifty men in the world capable of doing first class research work in cancer.

There is no ready made plan for selecting men who will develop fruitful ideas in cancer research. No one can as yet predict who will stumble upon the important facts. Inasmuch as cancer is apparently a biologic phenomenon widely distributed, associated with chronic irritation and influenced by heredity, it would seem that minds trained in the experimental methods of zoology and physical chemistry can be expected to ultimately solve the problem.

Time is necessary for productive work. Driving efficiency methods do not produce ideas. Endowment of large laboratories and cooperative attacks upon problems sometimes produce inventions. but any brilliant results in pure science only result from the coincidental presence of brains.

Money is needed, too, but only a pittance compared to the sums we expend upon the construction of public buildings. A small amount added to the endowments of already existing institutions in this country, would care for the available men in this field.

## EDUCATION

In the educational field much important work is being done to educate the public to come to the physician early. In the space allowed I will deal briefly with what I consider a more important matter—the necessity for the doctor to change his attitude toward the cancer question. Instead of the established picture of advanced malignancy, he must be brought to think of the disease in its early stages. He must recognize that cancer, when operable, has no characteristic signs and symptoms. When emaciation, cachexia and hematemesis occur, it is too late. He must learn that the radiologist, the endoscopist, the surgeon, and the surgical pathologist can decide the diagnosis early.

Cancer in its early stages is a local disease and, as such, curable. In spite of large sums spent to educate the public to come to the doctor early, we are amiss if we are unable to properly care for the condition when it confronts us. Evidence is accumulating to show that we are not diagnosing cancer earlier. For years MacCarty, with a vast experience in surgical pathology at the Mayo Clinic, has been working in the interests of earlier diagnosis. He(2) has recently presented numerous observations showing that cancer is still diagnosed late. Between 30 and 50 per cent of cancers of the breast, when first seen at the Mayo Clinic, are inoperable. For cancer of the colon the figure is 42 per cent, for the stomach 75 per cent. The percentage of operable tumors with lymph node involvement was: Breast. 62; stomach, 53.5; rectum, rectosigmoid, and sigmoid. 38; and rest of large bowel, 38. For the same regions the size of the operable tumors in centimeters was 5.4, 6.8, 5.9, and 6.9 respectively, when there was glandular involvement; without gland involvement the figures were 2.5, 5.4, 5.6, and 7.6. For these regions a cancer 2.5 cm. in diameter is arbitrarily designated as small or early. A tumor of this size does not produce classical signs of advanced cancer, but gives signs or symptoms sometimes associated with cancer. The physician must recognize that cancer exists as a small lesion and must exert every effort to discover that small lesion. Yearly comparisons of the sizes of cancers removed from the above organs show no significant change in the size of the tumors between 1918 and 1931. MacCarty does not believe there is evidence that the general profession is increasing its ability to diagnose early cancer.

Another change in viewpoint will lead the physician to appreciate that cancer is no longer a "one man" disease. Some physicians seldom see a patient with cancer, while radiologists, pathologists, dermatologists, and those in some surgical specialties, see many. The care of the cancer patient is becoming a group problem, requiring the services of the internist, surgeon, pathologist, and radiologist.

The responsibility of the pathologist is especially great in such a group. In addition to general laboratory procedures in which the patient receives a general diagnostic survey, the biopsy is of extreme importance. I prefer the rapid frozen section as used by MacCarty, supplemented by permanent paraffin sections, for biopsy work. Regardless of which technical methods are used, the biopsy aids in differential diagnosis and prognosis, and controls therapy. Regardless of location, if the size and character of the lesion are such as to permit complete removal without mutilation, the entire lesion should be removed.

Adequate service to the cancer patient depends upon careful examination of all tissues removed surgically. Too often diagnoses are missed because tissues are not examined. All surgical tissues should be examined microscopically as a part of a regular service to the patient. If such service is not available locally, arrangements should be made for such service with a competent pathologist, recognized by the American Medical Association and the American Society of Clinical Pathologists.

The expense of adequate cancer diagnosis and therapy make such service available in only a few places. About a dozen special cancer hospitals have been organized in the United States. Tumor clinics have been organized in strategic points in various general hospitals to offer a similar service. These clinics have been inspected and rated by the American College of Surgeons and by the American Society for the Control of Cancer.

Finally, education in the early stages of cancer must be carried direct to the doctor. He cannot leave his work for this instruction. It must be carried to him by those best endowed to teach him. This will require endowment of individuals or groups, as MacCarty[3] suggests, to "travel and teach without expectation of financial compensation from practice."

## CONCLUSION

Among the most pressing needs in our attack upon the cancer problem today are:

1. Well directed research by properly qualified investigators.

2. Realization by the physician that we must and can diagnose cancer early.

3. Realization that the proper handling of cancer patients is a cooperative procedure among members of the profession.

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# EARLY DIAGNOSIS AND TREATMENT OF CANCER*

JOSEPH WEINBERG, M. D.,
Omaha, Nebraska.

In the light of our present knowledge the successful treatment of cancer depends upon early recognition, and properly applied surgical and radiation therapy. The general physician is the keyman in both of these conditions as he is the one who must recognize the early lesion and take the necessary steps to insure proper treatment. It has been estimated that if all persons affected by cancer could be given the benefit of the knowledge now possessed by trained cancer specialists, the annual number of deaths in this country, which is at the present time one hundred and fifty thousand could be reduced to one hundred thousand.

The most favorable time to deal with a cancer is while it is small and circumscribed and has not yet invaded surrounding structures or metastasized to distant parts. To detect it at this early stage it is necessary to use methods of diagnosis other than those which apply to the advanced lesion. Also it must be recognized that chronic inflammatory lesions may become cancerous. When symptoms as we know them from textbook descriptions are present the lesion is too far advanced to allow satisfactory treatment. The general physician must be relied upon to detect the cancer lesion early by the use of inspection and palpation when the patient presents himself for examination. In special instances x-ray examination and other tests will be indicated. When the nature of the lesion is so obvious that these refinements in diagnosis are unnecessary and the patient is able to make the diagnosis of cancer himself, there is little to be done in the way of cure.

Delay in the treatment of cancer is due to (a) failure of the individual to consult his physician because he does not regard the condition as serious, (b) fear on the part of the patient that he will have his suspicions of cancer confirmed, and (c) failure of the physician to make a thorough examination. The first two of these difficulties are gradually being overcome by education of the public, largely through the work of the American Society for the Control of Cancer. The third difficulty is the problem of the physicians and can be solved only by a full appreciation of the importance of early diagnosis.

Some lesions are more easily diagnosed than others because of their situation and because of the signs and symptoms which they present. Thus, a skin lesion does not present the difficulties of a stomach lesion. It is more than a coincidence that surface lesion and those which may be inspected show a much higher proportion of cures than do concealed lesions. For this reason the most favorable results are being obtained with treatment of cancers of the skin, lip and cervix. An ulcer or fissure of the lip, mouth or tongue which fails to heal within a period of two weeks should be regarded as possibly cancerous and treated accordingly. The very early lesion of the uterine cervix can be detected only by visual examination with a speculum and proper light. When the patient comes to the physician because of abnormal bleeding the lesion is already advanced; the only way in which the very early lesion can be detected is by making a visual inspection of the cervix a part of the general routine examination. Early cancer may exist in fissures in which situation it is easily overlooked, and this must be kept in mind in determining the possibility of the presence of cancer. Cancers occurring in concealed areas will require special examinations for their detection. If the lesion is of the stomach, lung or bones, x-ray examination will be necessary together with other examinations indicated in the particular organs affected. Advanced carcinoma of the rectum is often undiagnosed because the physician regards the condition as hemorrhoids and fails to make a digital examination. Examination of a breast lesion is not complete without transillumination, and a bronchoscopic examination is indicated when carcinoma of a bronchus is suspected. All of these methods are well known to physicians, and their importance is recognized: the fault of not using them is due to a failure to realize that cancers are small in their beginning, and that painstaking methods are necessary to recognize them in their early stages.

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*From the Department of Surgery, University of Nebraska College of Medicine.

The biopsy is one of the most useful and at the same time one of the most abused methods of determining the presence or absence of cancer. To be of greatest value, the tissue should be removed under the supervision of the one who is going to treat the lesion if it proves to be cancer. A large block of tissue should be removed by sharp dissection so that it will be representative of the entire suspected area and its surrounding zone. Needless to say, the tissue should be prepared and examined by a qualified tissue pathologist. There are perhaps no lesions more difficult for the histopathologist to diagnose than beginning cancer of the breast, cervix and skin, the sites which are most favorable for early biopsy.

The treatment of early cancer is a special field and should not be undertaken by those not trained or equipped for this work. Most of the lesions which are curable are those which respond best to radiation therapy, a method of treatment which is a dangerous weapon in the hands of the untrained. In the present day, with radium available to any physician through radium supply institutions, it is especially important that the dangers of its promiscuous use be fully appreciated. The ideal cancer therapist is one skilled in clinical and histological diagnosis, proficient in surgical anatomy and technic, trained in radiation therapy and physics, and possessing a knowledge of internal medicine and the various specialties. As all of these attainments cannot be possessed by one physician, an ideal arrangement can be had only in a cancer clinic made up of a surgeon, radiologist, internist and pathologist, with an accessory staff of specialists in various fields to be called upon as occasion demands.

This method has been adopted in several foreign countries, notably Sweden, and is gradually being established in the United States, with the building of hospitals for cancer study and treatment, and organizing cancer departments in hospitals. Such groups have the advantage of adequate equipment, thorough training, facilities for follow-up and reexamination of patients, and opportunity to act as centers for education against cancer. The progress that has been made thus far in the treatment of cancer has been the result of cooperative work in well organized clinics and the results which have been obtained are the strongest argument which can be presented for them as against haphazard individual treatment of cancer. In speaking of the efficacy of the present methods of treatment of cancer, namely intelligently applied radiation therapy and surgery, conclusions should be based on the results obtained in the special cancer groups. These results will improve as more cancer clinics are organized, and as physicians appreciate the importance of diagnosing cases early and directing them to qualified groups for treatment.

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A physician says a man's health is indicated by the length of time he can hold his breath. And his wisdom by the length of time he can hold his tongue.

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Mrs. Mack: "I'm bothered with a little wart that I'd like to have removed."

Dr. Jones: "The divorce lawyer is three doors to the right."

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Doctor: "Influenza in itself is not dangerous, but it can have serious consequences."

Patient: "So I noticed from your bill."—Hummel, Hamburg.

# CLINICAL ASPECTS OF RADIATION IN NEOPLASTIC DISEASE*

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There is a general lack of appreciation of the many changes and definite progress that has been accomplished in radiotherapy during the past two decades. Many of the general profession appear to regard this field of therapeutics as static and unchanging, and have erroneously judged the present methods on the basis of results from surpassed methods of therapy. It is dangerous for any practitioner of radiotherapy to grow indolent in his complacency regarding methods of therapy adopted ten or fifteen years ago. The superiority of recently refined methods is adequately demonstrated by the higher percentage of cures and by the control of lesions which were previously uncontrollable as well as by the fewer complications and untoward symptoms shown by the patient. In 1919 the Radium Institute of Paris reported 10% of irradiated cases of carcinoma of the cervix to be well after five years, and in 1933 reported 40% to be well after five years. The Radiumhemmet, through combining external irradiation with local radium therapy, increased their percentage of five year cures in carcinoma of the cervix from 20% to 28% in the total group of cases, and the percentage of five year cures was increased from 9% to 17% in the more advanced cases. Previous to 1923, 23 cases of carcinoma of the tonsil had been treated by radiation at the Radiumhemmet, without any patient surviving three years, while in 1927, after subsequent improvement of methods, 4 of 14 patients treated were living and well for three years or more.

There has been an over-emphasis placed upon the quantitative aspects of the tools used in x-ray and radium therapy without due respect for improved understanding of the clinical problems and radiotherapeutic principles and resulting improvement of methods. In radiumtherapy all talk has been about the amount of radium and in x-ray therapy all talk has been about the size of the machine. As a result of some practitioners and clinics using x-ray exclusively or radium exclusively, the erroneous idea has been developed that these agents are antagonistic. In reality, x-ray and radium are synergistic and supplementary in action. The gamma rays of radium differ from x-rays only in their shorter wave length and the more intense local concentration of radiation by implanted or closely applied radium applicators. X-ray and radium are antagonistic only in that both agents make a demand upon the tolerance of the healthy tissues to radiation. The same physical principles govern the dosage of both agents.

Physical dosage is not merely a matter of so many minutes or so many milligram hours, although these are the factors which are usually last established and most often varied from one case to the other. For this reason there has been an over-emphasis upon these easily expressed but isolated items, while their real measure is dependent on many other factors. This is only another example of the tendency of modern medicine to become overconfident about figures regardless as to whether or not they mean anything. Dosage is, in reality, a clinical problem requiring familiarity with all aspects of the particular case as well as a working knowledge of the involved physical factors.

The greatest advance in the accurate use of physical dosage has been the development of dependable methods for measurement of the intensity and quantity of radiation in the case of x-ray and its measurement or prediction in the case of radium. These facts have been determined through a correlation of the physical, biological and clinical measurements. The total physical dosage of radiation which may be delivered will depend upon the quality of the radiation and its rate of delivery. The quality of radiation will vary with available source, and with the degree of filtration by means of which the more caustic and less penetrating rays are removed. The quantity of radiation emitted at the source of generation is determined by the number of milligrams in the case of radium or by the amperage and voltage in the case of x-ray. It is also essential to know the size and distribution of the source or foci and the degree of dispersion of rays through distance in order to estimate the amount of primary radiation reaching a given tissue. It is likewise essential to consider radiation from other sources, such as secondary radiation generated within the tissue, transmitted radiation from other ports or foci, residual radiation from previous treatments and radiation from other sources, as when x-ray and radium are used jointly. The proportion of the surface radiation to the total radiation delivered into the depths of a region is increased by lengthening the distance from the source of radiation to the surface, by the use of more penetrating radiation, by a moderately large port for delivery and by the use of cross-firing from multiple ports or multiple foci.

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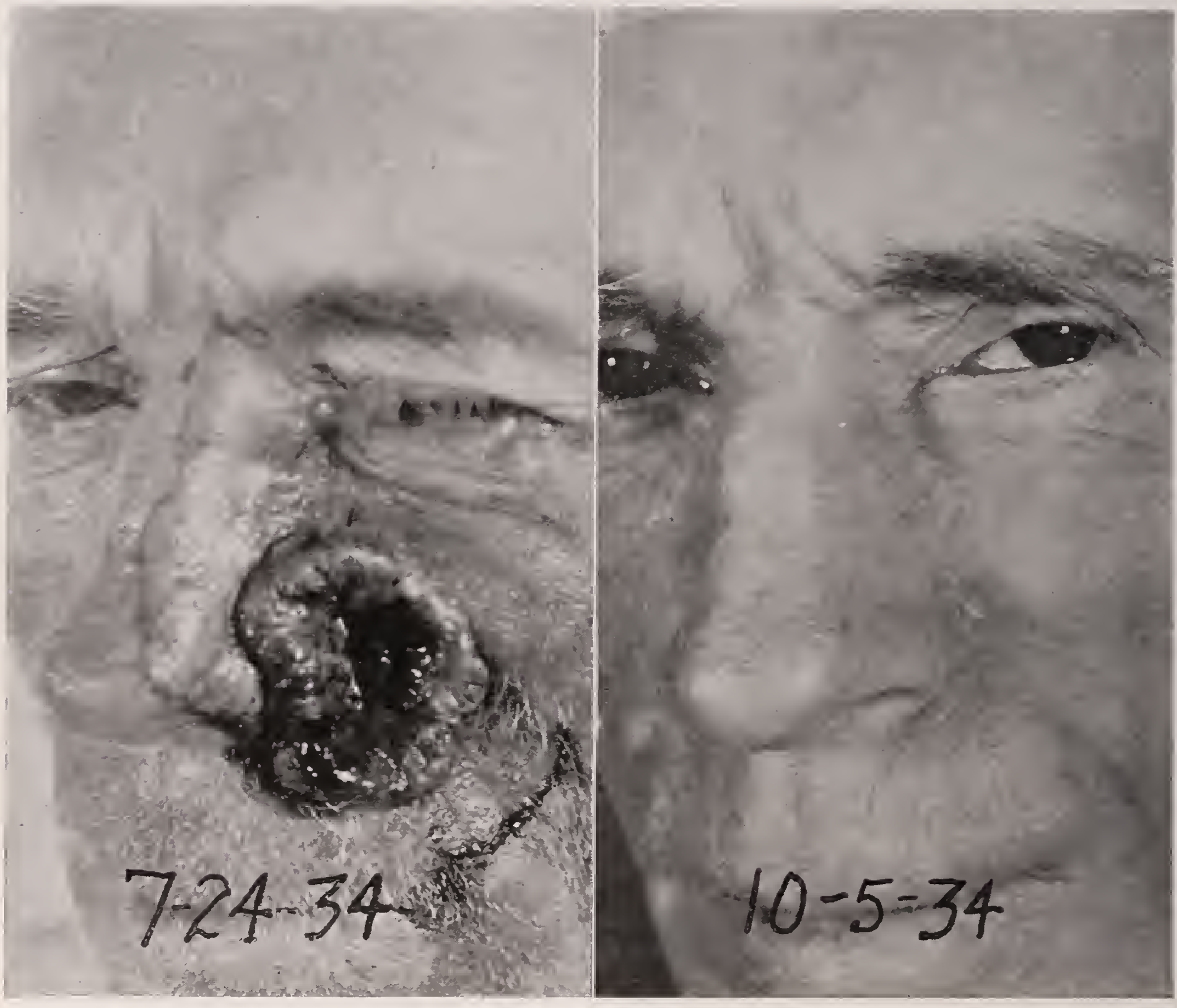
*Abstract presented before Omaha Mid-West Clinical Society, October 31, 1934.



H. B., age 68. Epithelioma of face. Referred by Dr. Charles E. Gurney. University Hospital, June 26, 1934.

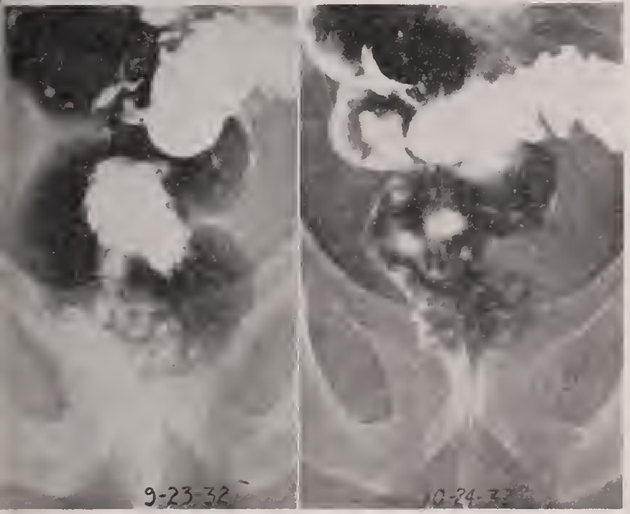
History of an elevated sore over the left nasomaxillary region gradually increasing in size during the past six months. Indurated ulcer at left inner canthus for 25 years. Examination showed an ulcerated, everted sessile tumor about 2x4x5 cm. Biopsy reported squamous cell carcinoma by Dr. J. P. Tollman.

Treatment: 80 milligrams of radium embedded in plastic mould filtered through 1 mm. platinum distributed in ten foci over an area 4x5x4x6 cm. at a distance of 1 cm. was applied for 5 to 8 hours daily from July 25, 1934, until August 3, 1934, giving a total of 68 hours. The eye was shielded by lead. Enlarged submaxillary glands were excised by Dr. C. R. Kennedy.

Result: The mass receded rapidly leaving no evidence of the lesion over the nasomaxillary fold after three months. Compare the photographs of July 30, 1934, with those of October 5, 1934.

In recognition of the relation between intensity and total dosage various systems of administration have been developed. The massive dose method originally developed by the German School is being abandoned because of the intense systemic reaction of the patients and because of the apparent superiority of clinical results obtained by the protracted fractionated methods of therapy advocated by Pfahler and Coutard. These latter methods allow the administration of an equal dose of radiation with much less local and systemic reaction and therefore, the administration of a much greater total dosage. The theory underlying the protracted administration is that more cells will be exposed to radiation during the stage of mitosis, at which time they are known to be especially susceptible. In keeping with this point of view it may even be advantageous to use only a small amount of radium. Increasing filtration to radiation has as its primary aim the elimination of caustic beta rays and the easily absorbed roentgen and gamma rays, but has the incidental effect of lowering the intensity and thereby prolonging the time of irradiation. Radium emits one hundred beta ray particles for each gamma ray. Beta rays are relatively feeble in penetration and are caustic to the skin. Satisfactory exclusion of these rays requires a minimum filtration of 0.5 mm. of platinum or 2 mm. of brass. Inadequate filtration such as 1 mm. brass permits five times as many beta rays as gamma rays to reach the surface tissues, which accounts for the intense local necrosis and ulceration commonly seen after radium therapy in the past.

The importance of homogenous irradiation throughout the region of involvement is often overlooked. The error is committed of heavily irradiating the central portion of a tumor, while its advancing borders and extensions are neglected. For example, in carcinoma of the cervix the uterine canal may be heavily irradiated, even to the point of fistula formation, and no effort be made for more direct irradiation of the parametrial extensions of the lesion. Increased homogeneity of treatment requires the use of multiple foci, crossfiring the region by x-ray, radium or both, and the use of radiation of adequate penetration at a distance sufficient to effectively minimize the spread of radiation by dispersion.



R. F., age 76. Adenocarcinoma of rectum. Case referred by Dr. Russell Best. University and Methodist Hospitals. September 22, 1932.

History of increasing weakness for one year and bloody diarrhea for 3 to 4 months. Digital and proctoscopic examination showed a rounded mass infiltrating right, anterior rectal wall measuring about 3x4x5 cm. Biopsy—adenocarcinoma of rectum by Dr. J. P. Tollman.

Treatment: Radium implantation on October 11, 1932 to October 12, 1932 and on November 1, 1932 to November 2, 1932 using 45 mgs. of radium filtered through 3/10 mm. of platinum for total of 2,160 mg. hrs. Deep x-ray therapy—700 roentgen units through each of four ports over the pelvis from October 16, 1932 to October 21, 1932.

Results: Double contrast enema of September 23, 1932 shows rounded mass on right wall which has decreased to about one-fourth its previous size during course of treatment by October 24, 1932. Patient gained 15 pounds and was relieved of all rectal symptoms within six months. He remains well after two years.

The error in total dosage is nearly always toward undertreatment. It is most essential that the early case of malignancy be adequately treated since the responsibilities of treatment are increased with the opportunity for cure. Undertreatment is the court established refuge of the timid or inexperienced therapist, although it may lead to a tragic sacrifice of the patient to his disease. Failure unjustly becomes a failure of x-ray or radium even though the failure is really attributable to the method used in its application. It should also be borne in mind that even overdosage in one portion of a lesion may be associated with undertreatment of another area.

There is an unfortunate tendency on the part of the general profession to speak of a benign radiation as a "burn", and to unnecessarily alarm the patient. Local itching and soreness, commonly associated with the reaction, are relieved by olive oil. Extensive denudation of epithelium or of the mucous membrane may occur without impairment of subsequent healing. Epilated hair usually returns within two to twenty months. Healing is impaired only when there has been permanent injury to the subcutaneous tissues and vascular bed. In cases where intensive radiation with an associated marked local tissue reaction is anticipated, the patient should be told of the expected reaction before any therapy is given. It is thereby possible to convince the patient that the response was willfully brought about, and not the result of neglect. Likewise, the patient should be warned about any other untoward symptoms which may be expected to develop in the course of treatment. In general, the effective and proper dosage of radiation used in the treatment of eradicable malignancy is the maximum amount of radiation which can be administered to the healthy surrounding tissues without producing any serious permanent damage to them.

Local tissue reaction to radiation depends not only upon the quality, intensity and total radiation administered, but also on the devitalization or irritation of the tissues by any other agents, such as irritating drugs, cautery or mechanical trauma. A large surface heals more slowly and less certainly than a smaller area. Subsequent healing of the dermatitis is retarded by trauma, infection, impaired blood supply, persistent malignancy and poor general health. The blood supply may have been impaired by previous radiation, scar tissue, recent operation, senile fibrosis, diabetes, arteriosclerosis, syphilis or anemia. The systemic effects of treatment are occasionally misinterpreted by the uninformed patient or family as an aggravation of the disease. Systemic effects can be largely obviated without decreasing the effectiveness of the treatment in cases where it is possible to fractionate and protract the dosage adequately. The factors of prime importance in determining the intensity of the systemic effects of treatment are the radiosensitivity of the healthy tissues, the radiosensitivity of the lesion, the size of the area treated, and the amount of radiation absorbed with particular regard for its rate of administration. The general condition of the patient and his idiosyncrasies to radiation have a definite limiting effect upon the local and systemic toleration for radiation in many cases.

Radiosensitivity should not be confused with curability by radiation. In general, radiosensitivity depends upn the histogenesis of the lesion and also upon its rate of growth and grade of malignancy. It is more probable that a rapidly growing lesion has distant metastases by the time that the patient first presents himself for treatment. Lymphoblastomatous lesions recede markedly under radiation, but since the disease tends to be systemic rather than localized, the prospects of permanent cure are remote. Ewing's sarcoma of bone, Wilm's tumor of the kidney, and seminoma of the testis are unusually radiosensitive lesions and yet the ultimate prognosis is not good due to early metastases.

The most satisfactory results of radiation therapy are found in the radiosensitive epithelial tumors, where the prospects of permanent arrest are good in case the lesions are localized and are adequately treated. This is particularly true of basal cell carcinoma and the more anaplastic epitheliomas although it also applies to localized squamous cell carcinoma. The best results are obtained in cases where the involvement is of the skin, lip, mouth, tongue, throat and cervix, although results have been encouraging in other regions as well. The suitability of epithelial tumors for radiotherapy is determined not only by their radiosensitivity but also by their localization. Lesions adjacent to vital structures or closely adjacent to avenues for hemorrhage, perforation and infection as in the case of the esophagus and bronchus are poorly adapted for treatment by any method.

Many practitioners are very skeptical regarding the alleged cures of malignancy by radiation, having never seen a successfully treated case, but this is not surprising since 80% to 85% of malignant cases terminate fatally in spite of all our methods of treatment at the present time. The mere fact that x-ray or radium has been used in the treatment of a case of malignancy does not mean that the case was well selected nor that radiation was given a fair technic and method in its application. Likewise it is not to be expected that the practitioner who does a certain specialized therapeutic procedure only occasionally would be thoroughly familiar with the many pitfalls which lead to failure or undesirable complications. A tabulated survey of results from radiotherapy in the three to five year cure of malignant disease in different regions by various workers is submitted as an index of what has been accomplished in special clinics with representative cases in all stages of disease. Current reports show still more cures even though the best reports leave much to be desired and much more to be accomplished.

Results of radiotherapy in arrest or cure of malignancy, all stages:

| Region | Living and Well | | Cases | Author |
|---|---|---|---|---|
| Skin | 70-90% | 5 years | 4,000 | MacKee |
| Lip | 85% | 5 years | 119 | Martin |
| Tongue | 24% | 5 years | 344 | Regaud |
| Tonsil | 23% | 5 years | 59 | Coutard |
| Cervix | 22% | 5 years | 1,574 | Healy |
| Body Ut. | 19% | 5 years | 112 | Burnam |
| Bladder | 35% | 5 years | 139 | Dean |
| Rectum | 20% | 5 years | 59 | Neuman |
| Sarcomas | 15% | 5 years | 129 | Rozsa |

The radiotherapist must have a surgical viewpoint in the treatment of malignancies even though his methods rarely involve the use of actual surgery. The problem is that of eradication of the primary malignancy and its metastases, getting well beyond the advancing extension of the growth. The self sufficiency of adequate radiation therapy in the control of many malignancies is attested by the reports quoted above. Surgical access is necessary in only a small percentage of cases, such as carcinoma of the sinuses, larynx, bladder and rectum, and a few other regions in which access by surgery or special instrumentation is necessary. Any intelligent radiotherapist should welcome understanding surgical collaboration in the treatment of these cases, both because of the technical difficulties involved, and because of the great responsibility always undertaken in the treatment of a disease which if uncontrolled means certain death. In a few clinics radiotherapy may be used complementary to surgery as in the thorough irradiation of carcinoma of the breast or uterus preliminary to removal, or it may be used supplementary to surgery as in the irradiation of forsaken nonresectable lesions, unremovable glands and postoperative recurrences. In general, we believe that metastatic glands should be irradiated and then resected in all cases where complete removal is possible. A metastasis is always less radiosensitive than its primary lesion. Preoperative radiation may render certain inoperable lesions movable and resectable and is generally very much superior to postoperative radiotherapy, in my opinion. The spread of operated malignancy may be retarded or arrested as a result of fibrosis in the surrounding connective tissue and along the course of the adjacent lymphatics. It is a mistake to regard radiation therapy as indicated only in advanced hopeless cases which are inoperable although all cases which are salvaged from this otherwise hopeless group are transcendental results establishing the merits of radiotherapy beyond question. The earlier, smaller and more localized the lesion, the better the chances of cure by any method of therapy whether it be primarily surgical or radiological.

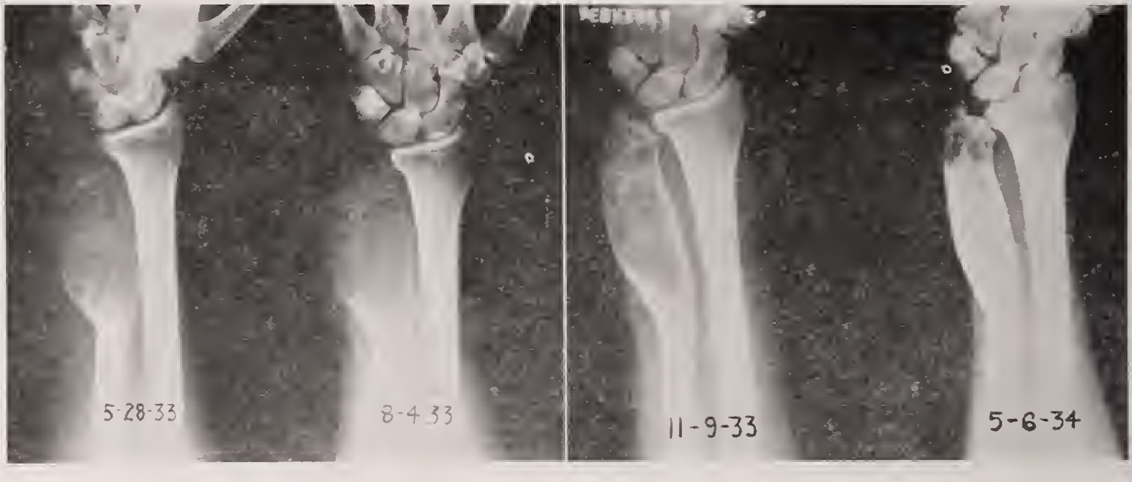
Radiation therapy has a definite place in the palliative treatment of incurable malignancy and should be undertaken with a definite purpose. The shrinkage of tumors may relieve various symptoms resulting from mechanical interference. Encumbrance and deformity resulting from a massive radiosensitive tumor can be lessened. Ascites, pleural fluid and edema due to venous or lymphatic obstruction by tumor masses can usually be relieved temporarily and neoplastic stenosis of the esophagus, larynx and other hollow passageways can often be similarly relieved or postponed. Interference with nerves producing paralysis, blindness or pain from pressure by tumor masses can be alleviated. Superficial infection is reduced and the occurrence of hemorrhages is lessened with restoration of the contour of the surfaces. Retardation of the growth and spread of the malignancy prolongs life, which is made worthwhile in view of the general improvement of health and morale. Previously helpless patients may be able to care for themselves and previously incapacitated individuals may be able to return to useful occupations.

Selected benign tumors respond to radiation, others call for excision and others need no treatment. Angiomas shrink spectacularly under radium, beta rays here show their one virtue in promoting an obliterative endarteritis. The effect of radiation upon hyperplastic tissues is evidenced in the resolution of warts, callosities, keloids and hyperkeratoses. The shrinkage of various benign tumors such as pituitary adenomas, subinvoluted thymi, uterine fibroids and giant cell tumors of bone may relieve symptoms resulting from mechanical interference or pressure.

Clinical improvement resulting from radiotherapy is delayed for a longer period of time than is ordinarily anticipated. A period of five to twenty days usually elapses during which there is little alleviation of pain, recession of fluid, shrinkage of the tumor, or relief of pressure symptoms. In fact, the intervening reaction to radiation may give an aggravation of symptoms. In some cases the full benefits of therapy may not become evident until after a period of one to six months as in the case of angiomas and the giant cell tumor shown in figure 3. Premature repetition of treatment over angiomas results in excessive atrophy, fibrosis and telangiectasis. Heavy therapy to benign lesions should not be given over growth centers of bones in children due to local stunting of development which may lead to subsequent skeletal asymmetry after an interval of years. Therapy about the eye must be administered with caution due to the danger of radiation cataract which may appear one or two years afterwards.

Some cases treated by radiation may appear to be made even worse. These manifestations should be analyzed in the light of their causes before condemning radiation. There are cases showing particular manifestations of disease or complications in which radiation is contraindicated or must be administered cautiously. When a large dosage of radiation is delivered over extensive areas of radiosensitive tissue in a relatively short time, the systemic effects may prostrate the patient, and in some cases may precipitate exodus. This type of reaction can be largely obviated through protracting the treatments over a longer period of time and through the administration of smaller individual doses. The administration of calcium and vitamine D. appears to ameliorate the systemic reaction to radiation. Patients who show cachexia, toxemia, and debilitation from a fulminating or advanced disease may be overwhelmed by the nonspecific protein reaction of a radiation toxemia. In cases of this type, radiation is contraindicated or should be given in very small doses. Acute leukemias run a rapidly fatal course regardless of any known therapy and radiation as administered to a chronic leukemia may precipitate death in these acute cases. Patients with marked anemia showing a hemoglobin below 30% respond unfavorably to intensive radiation. In malignant cases with sepsis, the infection should be treated specifically prior to treatment of the malignancy by radiation. Small doses of radiation may benefit an infected lesion but moderate or large doses always aggravate an undrained abscess or diffuse sepsis. Postradiation edema may cause an aggravation of symptoms resulting from interference by a tumor growth such as stenosis in the case of carcinoma of the larynx or generally increased pressure as in the case of an intracranial tumor, which makes it necessary to be cautious in the administration of initial radiation in this type of case. The initial doses must be small, allowing some preliminary regression before instituting radiation of usual intensity. Preliminary surgical intervention may be advisable for the quick relief of symptoms and as a safety valve against the complication of postradiation edema.

Thorough irradiation does not spread cancer, regardless of propaganda to the contrary. Occasionally metastases may appear during the course of, or shortly following radiation therapy, but this only means that the patient had a highly malignant tumor which was widely disseminated regardless of therapy. Distant metastases are usually present long before clinical evidence of their presence is available and the doctor must await an interval of time until they become apparent. It has been claimed by some writers that very small doses of radiation are stimulating, but even this is very questionable. Small doses are never used in the treatment of malignant disease. Certainly we may be assured that properly administered radiation never stimulates or spreads malignant tissue. Inadequate initial radiation through altering the tumor and fibrosing its bed does seriously lessen the prospects of cure by subsequent radiation even though it be adequate at this latter time.



L. C., age 20. Giant Cell Tumor of Ulna. Case referred by Dr. Herman Johnson. Methodist Hospital. May 28, 1933.

History of dull pain and progressive swelling of the ulnar side of the right wrist of six months duration aggravated by recent pregnancy.

Examination showed a fusiform, firm swelling of the ulnar aspect of the distal three inches of the forearm.

Treatment: X-ray therapy, 200,000 volts, filtered through ½ mm. cu. and 2 mm. al. was administered. May 28, 1933, 500 roentgen units through 4 ports. August 4, 1933, 500 roentgen units through 3 ports. November 9, 1933, 350 roentgen units through 3 ports.

Results: This case emphasizes the prolonged interval at times required for effects of therapy to become evident. After 3 months there was very little evidence of improvement while after 6 months there was definite shrinkage of the tumor and recalcification of bone. One year after treatment, improvement is strikingly shown by comparison of the radiographs.

All good therapy, whether it be medical, surgical or radiological, requires individualization in the selection of cases and in the adaptation of treatment to the particular case. It is impossible to intelligently prescribe a program of radiation therapy for a lesion unless one is thoroughly familiar with all aspects of the case. The general nature, history and etiology of the disease should be understood as far as possible and potential causes of recurrence, such as tobacco and traumatization should be controlled. It is essential to know not only the location of the lesion but its size, relation to adjacent organs and extent of invasion and metastases. The presence of complications such as sepsis, hemorrhage and pressure symptoms must be ascertained before instituting any radiation therapy. In questionable lesions and accessible malignancies, the histopathology should be studied to serve as an index of radiosensitivity and an aid in guiding the program for control of metastases. The general condition of the patient as influenced by age, constitution, the present disease, and complicating disease must be considered. It is essential that these many facts be assembled and weighed in order that the clinical problem can be appreciated sufficiently to allow an intelligent comprehension of what may be attempted, both immediately and ultimately in the particular case. The prospective accomplishment by radiation must be balanced against the offerings from other forms of therapy in a practical attainment of the selected biological and physiological goals sought in the individual case. After having decided upon radiation therapy, the physical factors of dosage are selected in terms of their influence on the biological and physiological effects in the specific lesion of the particular case. Minutes and milligram hours are no longer considered as entities in themselves but rather as a few of the tools of clinical radiology and humble servants of the patient.

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Andy S. to hotel mgr.: "I sell brains, understand, I sell brains."

Hotel mgr.: "Well, you're the first traveling salesman I've seen that didn't carry samples."

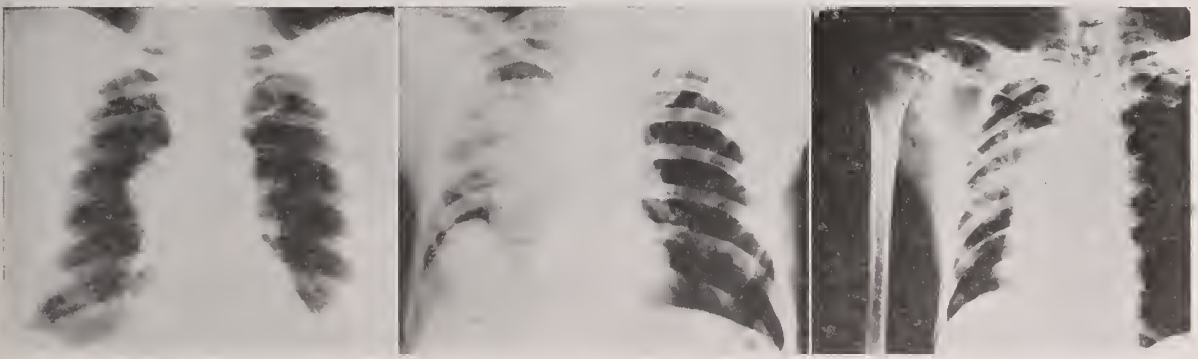
# THE HIGH VOLTAGE TREATMENT OF CANCER

**ROSCOE L. SMITH, M. D.,**
**Lincoln, Nebraska.**

The most convincing and encouraging evidence that higher voltage radiation of extremely short wave length is a step in advance is best illustrated by findings on biopsy material of tumors which have first received preoperative rediation.

To produce the most effective beam of radiation a constant potential, condenser filtered, generating outfit of 800,000 volt capacity was selected to excite a Lauritsen's type x-ray tube.

Since there are so many different methods for the measurement of voltage and due to the discrepancies we refer to our energy output in terms of wave lengths or that fraction of an Engstrom unit that is produced by the set-up we employ in the treatment of neoplastic disease. At a focal skin distance of 74 cm. the beam of radiant energy filtered through 1½ mm. of lead at half value allows us ample output and an effective beam of energy which measures .025 of an Engstrom Unit.



1 2 3

Mr. B., age 54. Fig. 1—Shows the appearance of the tumor in the right root area before radiation. Fig. 2—Appearance of the lung six months after he had received a series of 200 K. V. radiation. Fig. 3—Appearance of the lung three months later or two months after he had received one series of 600 K. V. radiation.

Recent improvements in tube construction developed by T. R. Folsom in charge of the Department of Physics at the Lincoln General Cancer Clinic, has not only increased our output but has improved the quality of the radiation. The improvement in the effective beam of radiation according to Mr. Folsom is due to the adoption of a pure lead target on a copper backing, a combination which has never before been employed with high voltage, to our knowledge.

Our procedure in the treatment of cancer in any stage is to divide the skin surrounding the tumor in as many 15x20 cm. areas as possible and direct the beam of radiation directly toward the tumor. Three hundred R. units are administered daily to a single skin area and all areas are treated in rotation until each area has received a total of 2,100 R. units.

In the event the tumor should be located close to the surface the tumor receives additional treatment of one-half of an erythema dose of low voltage, applying 185 K. V. mechanical rectified current, ½ mm. copper and 1 mm. aluminum filters at a skin distance of 50 cm. The low voltage treatment is administered immediately following the completion of high voltage series.

When dealing with recurrent nodules following mammectomy which frequently occur in and under the skin on the chest wall, we proceed in a similar manner, employing our high voltage radiation for its effect on the deep structures and modifying the voltage to produce a much longer wave length for the skin effect. Usually 140 K. V. mechanical rectified current, 3 mm. aluminum filter, 28 cm. focal skin distance. applied for a sufficient time to produce a threshhold erythema. The combination of extremely highly filtered x-ray of a very short wave length and the low voltage or longer and less penetrating radiation, seems to produce more rapid recession of cancer tissue. This effect is not obtained when either is employed singly. Such procedures as outlined. when administered preoperatively, increase many fold the chance for recovery.

The marked relief of symptoms and rapid recession of the tumor mass often permit surgical removal, which otherwise would have been impossible.

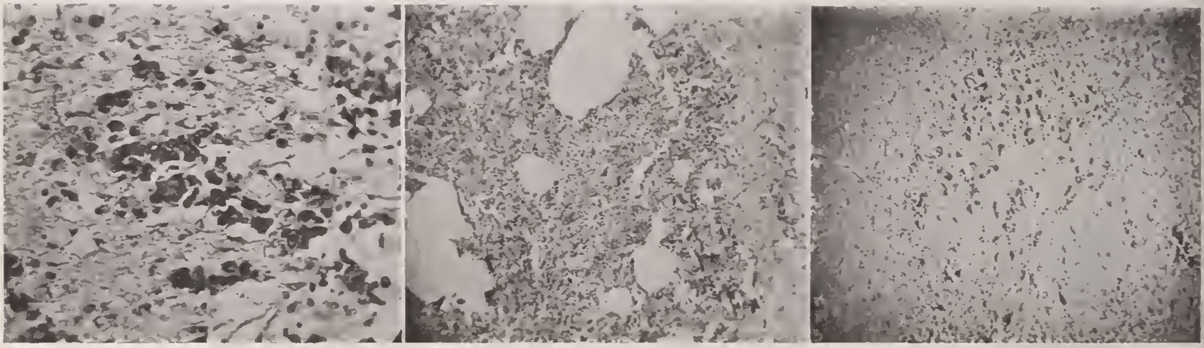
The microscopic findings on numerous sections of tumors treated with high voltage radiation prior to removal, show many striking changes of the tumor cells. The following are typical examples:

### CASE NO. 1

Mr. B., age 54. Consulted me November 6, 1933, complaining of a harassing cough from which he could get no relief. Six months prior to this date he had a diagnosis of primary carcinoma of the lung. An x-ray plate at the first observation showed a circular area of increased density about two inches in diameter near the root of his right lung.

He was given a series of 200 K. V. radiation. When I examined him six months later an x-ray plate showed a large diffuse area of increased density about six inches long involving the entire root and adjacent lung on the right side.

A series of 600 K. V. radiation was given over a month's duration, totaling 4,800 R. units, after which he was greatly improved and resumed his occupation. Two months later he returned for his second series feeling well. Roentgenograms at this time showed a complete disappearance of the tumor. There was considerable retraction of the lung and the heart was pulled over into the right pleural cavity. The roentgen findings were later verified at autopsy.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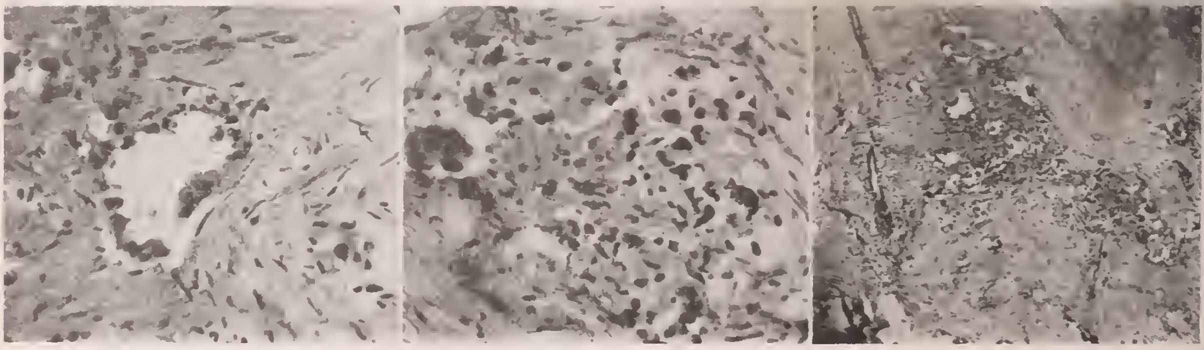
**Mr. B. Figs. 4 and 5—Photomicrographs of sections through the lung showing the changes which have occurred following 600 K. V. radiation. Fig. 6—Photomicrographs of sections of brain tissue showing metastatic carcinoma.**

During the second series of treatments he developed a divergent squint, ptosis of the lids, choked discs, nausea and later became irrational and died March 9, 1934.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**Mrs B., age 73. Figures 7, 8 and 9, photomicrographs of the tumor following two series of 600 K. V. radiation.**

### PATHOLOGICAL REPORT

Lungs: Many sections taken from various locations in the right lung show as the most prominent feature a remarkable proliferation of histiocytes most of which are laden with brownish black pigment. In some areas there is localized pneumonia where polymorphonuclear leucocytes predominate. The sections of bronchial mucous membrane show nothing of note save for some proliferation of the epithelium. There is general increase of fibrous connective tissue throughout the right lung. There are no definite recognizeable groups of carcinoma cells seen in the lung, although in some areas there are cells which, while completely isolated, may represent carcinoma cells.

### DIAGNOSIS:

Primary carcinoma of the lung, metastases to the brain, cerebral malacia. Evidence for the primary tumor being in the lung is based chiefly on the fact that repeated x-ray examinations showed a mass in the right hilus which increased in size throughout a series of 200 K. V. radiation, and promptly disappeared under 600 K. V. therapy. These findings are the only evidence that a carcinoma had ever existed in the lung. However, no primary tumor was found elsewhere and metastatic carcinoma was present in the brain.

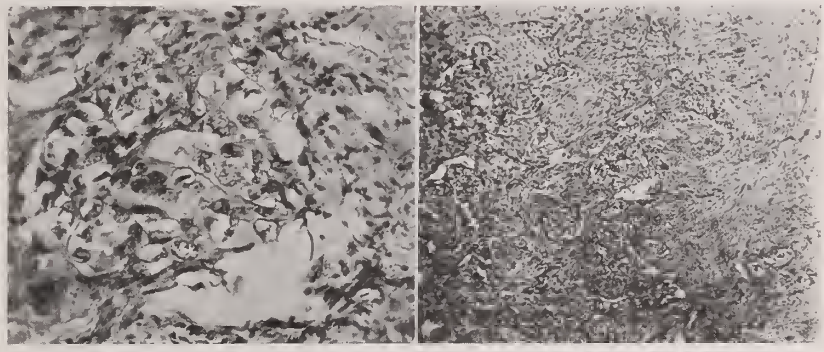
### CASE NO. 2

Mrs. B., age 73 years. She first consulted me February 6, 1934. She had a large nodule in the upper outer quadrant of her left breast. It measured about $2\frac{1}{2}$ inches in diameter. It was hard, slightly movable and was attached to the skin. She had noticed a small nodule in the breast for several years, but only lately had it increased in size. A series of 600 K. V. radiation was administered in February, 1934, and a second series was administered after a two months rest, making a total of 8,400 R. units. She returned for observation six weeks after her second series and an examination revealed a small hard nodule in the upper outer quadrant of the left breast which measured about one inch in the widest diameter and $\frac{3}{4}$ inch in the smallest diameter. It was freely movable and approximately 1/5 the size of the original tumor. There was no involvement of the axillary or supraclavicular glands and an x-ray plate of the lung and mediastinum was likewise negative. The breast was removed July 13, 1934, by a simple mammectomy. No attempt was made to remove the pectoral muscles or disturb the axillary glands. She received a third series two months following her operation. Numerous sections were made of the nodule and they show:

### PATHOLOGICAL REPORT

### MICROSCOPIC FINDINGS:

The sections consist largely of dense fibrous tissue with varying sized islands of carcinoma tissue. Carcinoma cells occur in sheets and strands. The carcinoma cells show also general pycnosis of the nuclei. The cytoplasm is granular and often vacuolated. No mitotic figures are seen. In some instances the mass of carcinoma cells appear shrunken. Some are undergoing necrosis. Rarely the necrotic material is infiltrated with inflammatory cells and here only occasional malignant cells remain. In other areas fibroblasts are invading the necrotic areas.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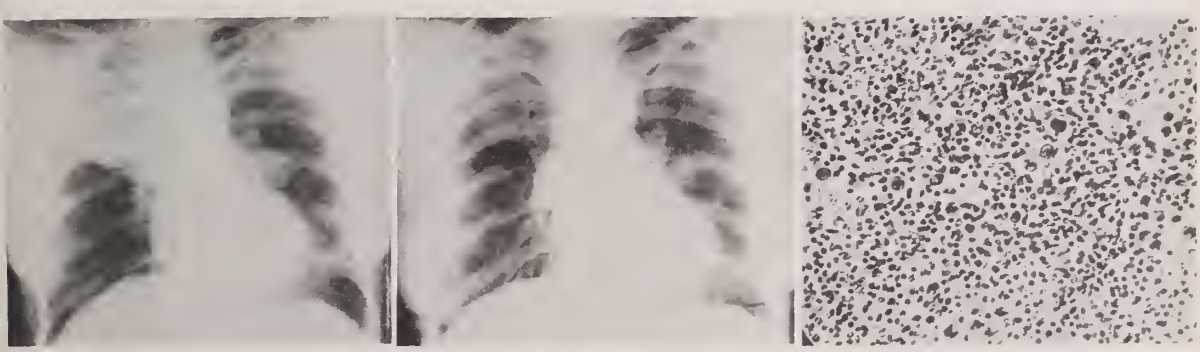
**Mrs. S., age 56. Photomicrograph of sections of the breast tumor following 600 K. V. radiation.**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Mrs. P., age 50. Fig. 12—X-ray plate showing tumor of the upper right lobe and tumor in the left root area before radiation. Fig. 13—X-ray plate one month later. A series of 600 K. V. radiation had been given in the meantime. Fig. 14—Photomicrograph of the original tumor.

### DIAGNOSIS:

Carcinoma of the breast undergoing degeneration.

### CASE NO. 3

Mrs. S., age 56. This lady appealed to me for relief of a large tumor in the upper outer quadrant of her right breast. There was considerable retraction of the breast, and dimpling of the skin. 3,600 R. units of 600 K. V. radiation were delivered through three portals of entry during November, 1933. According to previous arrangements she returned on December 15, 1933 for a mammectomy. The tumor had receded to 1/3 of its original size. The retraction of the skin was barely visible. A mammectomy was accomplished with electric cautery. Her recovery was uneventful and she returned home on the 24th of December. That pathologist's report on sections is of great interest and is as follows:

### MICROSCOPIC:

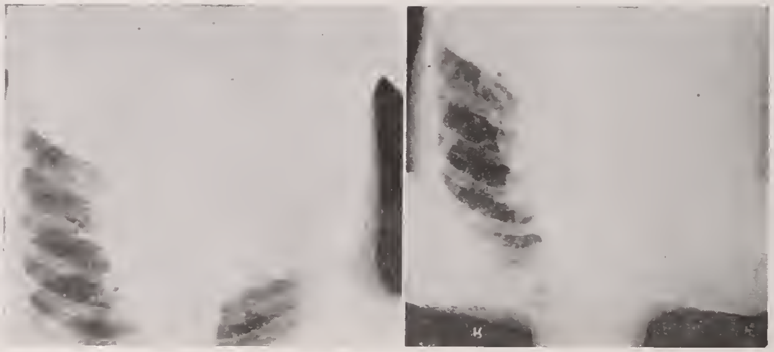
Sections of the breast tumor which has received high voltage therapy before removal shows many striking changes of the tumor cells. Most of the sections show only shadows of tumor cells remaining. These cells show a small pycnotic nucleus and the cytoplasm is distended with a clear pale staining substance. Other areas show the cytoplasm to be granular and there is a marked degree of karryorrhexis. At the periphery of the tumor mass there are a few cells which, as judged by their staining characteristics, appear to be still viable. However, even in these areas there is definite indication of cell damage.

### CASE NO. 4

Mrs. P., age 50. She first consulted me in 1931 immediately following a resection of a tumor in the left axilla. We began a series of 200 K. V. treatment and from time to time in the usual procedure administered the usual amount of radiation. She remained well for about one year at which time she again consulted me with a nodule near the margin of her previous scar. A biopsy proved this to be Hodgkin's lymphogranuloma. The area of recurrence was thoroughly treated with radium needles which were imbedded in and around the pathological area. The lesion promptly disappeared. I heard nothing more from her until October 24, 1933. At that time there was marked loss of weight, a harrassing cough, constant pain in the upper right chest. An x-ray plate on this date shows a consolidation of the upper lobe of the right lung, and a small circular area of increased density in the left root.

One treatment of 600 K. V. radiation was administered daily for 18 days. She received a total of 3,600 R. units. After the first ten days her cough and pain had subsided and when she was dismissed she was symptom free. She returned for a radiographic examination one month from the time her treatment was begun. She was symptom free and her x-ray plate of that date showed a complete disappearance of the consolidation in the upper right lobe and in the left root area.

Two additional series were administered at two month intervals, a total of 13,800 R. At present she is symptom free and x-ray plates of the lung are negative.



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Mrs. E., age 51. Fig. 15—Appearance of the lung before radiation. Fig. 16—Appearance of the lung following radiation.

BIOPSY REPORT:

GROSS:

Spherical-encapsulated tumor 2.5 cm. in diameter having the gross characteristics of lymphatic tissue.

MICROSCOPIC:

### CASE NO. 5

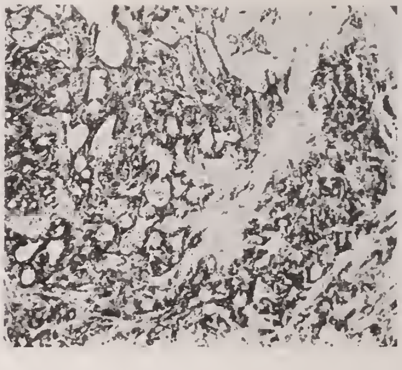
Mrs. E., age 51. She first noticed a lump in the left breast in 1925. The breast was amputated and she remained well for six years. At that time the operative scar broke down and she received 140 K. V. radiation. The slough persisted and surrounding this area of degenerated tissue there was a ridge which was hard and indurated and a number of small hard nodules scattered over the chest wall just under and in the skin. Late in 1932 she noticed a nodule in the right breast which was operated early in 1933. When she presented herself to me for treatment October 6, 1933, we found in addition to the lesion described, hydrothorax of the left pleural cavity.

A series of high voltage therapy was given in October through six portals covering the entire thorax. She received a total of 6,000 R. units. Two months later the second series was given, a total of 7,200 R. units.

Again April 21, 1934, her third series of radiation was started and completed May 26, 1934. During this period there was but little recession in the tumor tissue and it had been necessary to do a paracentesis of the pleural cavity six or seven times during the course of her treatment. In May, 1934, four large areas covering the chest wall received an erythema dose of low voltage radiation with 140 K. V., 3 mm. aluminum and 20 inch focal skin distance. This produced a threshold erythema which subsided in about two weeks. When she reported for observation July 11, 1934, all the induration and nodules had disappeared. The sloughing area over the anterior left thoracic wall had decreased in size. Only a small area one inch in diameter remained and has since healed. The low voltage radiation was repeated and an x-ray plate at this time shows normal costophrenic and cardiophrenic angles on both sides. There is moderate increase in density near the base of the left lung which I believe is due to thickened pleura. There is no evidence of fluid in the pleural cavity and clinically she is enjoying the best of health.

### CASE NO. 6

Mr. L., age 84. He had a large palpable mass surrounding his anal canal and extending upward involving his bowel for 2 or 3 inches. His gut was constricted until it was impossible to insert the examining finger. There was marked loss of weight, cachexia, no appetite, a constant feeling of uneasiness, extreme pain and insomnia. He was thoroughly aware of his condition and had given up all hope of relief. A total of 6,000 R. units of 600 K. V. radiation was administered through five portals of entry during October, 1933. On January 4, 1934, a second series was given, a total of 7,000 R. units. He had gained in weight and he had the appearance of a normal man of 70. He was unusually vigorous and had no pain. His diet consisted of the ordinary food of the average family. He was allowed to return to his home and again presented himself three months later for the third series. The same five areas were selected and 8,000 R. units were administered. Throughout this entire period he has remained symptom free. Before he was dismissed a proctoscopic examination was made without difficulty. A small red slightly pedunculated area in the bowel wall was



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Mr. L., age 84. Photomicrograph of the original tumor.

visible, in all probability the site of his original tumor. To date he is in perfect health. No attempt was made to remove a section for biopsy at the conclusion of treatment.

### CASE NO. 7

Mr. A., 40 years of age. Originally had a sarcoma involving the right inguinal glands. Repeated attempts had been made to eradicate the tumor surgically. When the patient arrived in Lincoln there was a huge mass involving the right groin extending well up into the pelvis. His right leg was edematous and twice the size of the left. He had lost weight and was suffering excruciating pain. It was almost impossible for him to maintain the necessary positions on the treatment table. After the first two weeks of treatment he had improved to such an extent that he secured a room on the outside and made daily trips to the institution for treatment. We finished his first series of treatment in one month's time after which he walked three blocks to the car line, took a street car to the bus depot and proceeded by bus to his home in an adjoining state. He received three series of 600 K. V. radiation at intervals of two months, totaling 28,000 R units.

When he presented himself for the third series his improvement was marked. He was practically free from pain, he had gained weight, the tumor has receded until it was but a small nodule in the right groin some three inches in diameter. The right thigh had diminished in size until it closely approached that of the left with full function of his right hip joint and he walked with only a slight limp. He has returned to work as overseer of a gravel pit. When he first presented himself for treatment we did not make an x-ray examination of his pelvis due to the fact that we felt he would not live long. At the time of his second series a roentgenogram shows positive evidence of a destructive lesion involving the pubic, ischium and acetabulum. An x-ray plate at the close of his third series shows marked regeneration of bone.

### CONCLUSIONS:

First, we recommend one series of 600 K. V. radiation preceding the radical ressection of early operable malignant tumors or biopsies.

Second, we believe high voltage radiation surpasses any other type of palliative treatment and is preferable for relief of pain and to prolong life in inoperable cancer.

Third, adequate preoperative 600 K. V. constant potential radiation will do much to reduce the mortality in cancer and it would seem from our present knowledge to be the most effective treatment.

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## CARCINOMA OF THE STOMACH—THE NECESSITY OF EARLY DIAGNOSIS AND TREATMENT

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Statistics show that the stomach is the most common site of carcinoma(1), nearly one-third of all cancers occurring in this organ(8), and that gastric carcinoma heads the list as a cause of death from cancer(2). Although carcinoma of the stomach is occasionally seen in an individual under thirty-five, eighty-five per cent occur between forty and sixty-nine(1). The ratio of incidence in male and female is three or four to one.

This extremely high mortality rate, persisting in spite of the availability of the x-ray which, in expert hands, is capable of making at least a presumptive diagnosis in ninety-five per cent of cases(8), can be accounted for in part by several factors: (1) the location of the lesion in a "silent area" of the stomach with an absence of symptoms until the disease is far advanced, (2) the failure of the patient with symptoms to consult his doctor sufficiently early, (3) delay on the part of the physician in establishing a diagnosis, and (4) a loss of time after the diagnosis has been made in getting the patient into the hands of a competent surgeon for a possible resection—the one chance of cure.

The only hope for improvement in the first of these factors seems to lie in increasing the number of "annual" examinations of apparently healthy people. The American Society for the Control of Cancer, the American College of Surgeons, and other groups are attempting to change the second factor by waging a campaign of education among the laity, telling them that cancer in its earliest stage is a local disease and is curable, and that, whenever suspicious symptoms develop, they should consult their family physician without delay. Such beneficent propaganda has increased the responsibility of the profession many fold. How are the doctors meeting this added responsibility? A partial answer to this question, as far as cancer of the stomach is concerned, is found in the following report by Gatewood(3) of the results of a series of cases observed between 1920 and 1930 at the Presbyterian Hospital, in Chicago: ". . . the patient (with cancer of the stomach) waited on an average of 5.3 months before seeing a doctor and that a further delay of 8.3 months occurred before these patients came to operation. The reasons for the delays were numerous, the most common being the fact that the patient had had some previous stomach trouble. However, lack of careful examination of the patient was often a very common cause and the responsibility rested squarely with the physician. A third, which was present all too frequently, was the fact that many physicians still feel that the patient is hopelessly doomed from the start and that operative interference carries a high mortality rate with little or no relief."

These statistics emphasize the need of keeping before the profession and especially before the general practitioner—for it is to him the patient with a carcinoma in a curable stage most frequently comes and not to the trained gastro-enterologist or expert abdominal surgeon—certain well-established facts concerning the early diagnosis, curability, and operability of this most dreaded affliction. This paper, therefore, is written with a full knowledge that it contains nothing new or original but with the hope that it may stimulate a greater interest in early diagnosis and its corollary: a greater number of operations while there is yet a good chance of cure.

## SYMPTOMS

There are no pathognomonic symptoms of early carcinoma of the stomach; their character depends upon the situation, extent, and rigidity of the growth. If this is true, therefore, any patient over forty with a dyspepsia which is not relieved in a short time by treatment should be examined carefully (an x-ray examination is particularly important) to exclude cancer if for no other reason. As Lahey(4) has so aptly remarked: "The salvation of patients with carcinoma of the stomach is in early bismuth x-rays of the stomach in all patients with any change of digestive function, loss of appetite, or distaste for food." For the purpose of describing its symptoms, carcinoma of the stomach may be grouped into four types(5): (1) cancer at the cardiac end, (2) in the middle third, (3) at the pyloric end, and (4) cancer on an ulcer base. It is a fortunate fact(8) that seventy per cent of gastric malignancies are found in the pyloric end of the stomach where they give rise to early symptoms and offer the best chance of successful resection.

1. A growth at the fundus of the stomach usually fails to produce symptoms until the outlook is hopeless. Occasionally an encroachment on the cardia produces obstructive symptoms: dysphagia, regurgitation or vomiting shortly after meals, and eventually pain and weight loss.

2. Cancer located in the middle third of the stomach, likewise, usually gives no early digestive symptoms to indicate its presence, the clinical manifestations being simply a general loss of health: gradual loss of strength, decreasing endurance, pallor, and some loss of weight. Physical and x-ray examination will make the diagnosis.

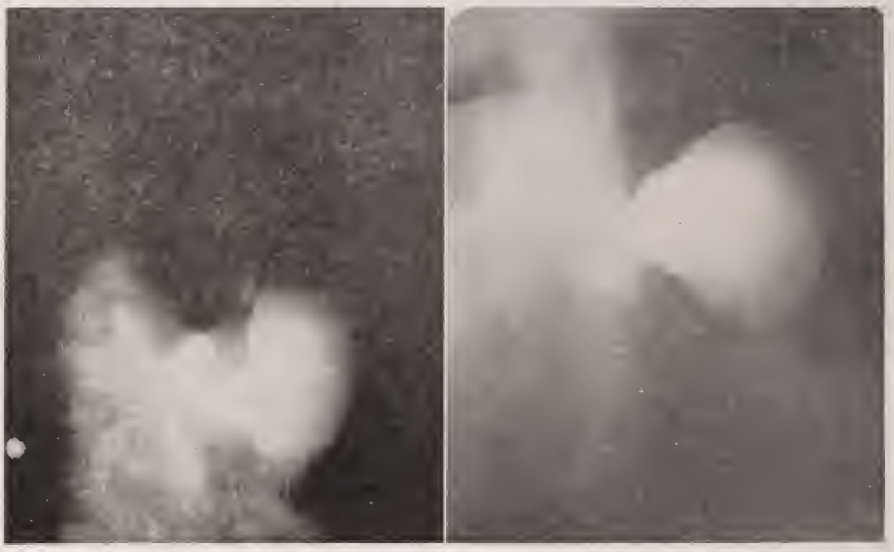

FIGURE 1

A—Mr. H. D., age 44. Carcinoma—pyloric third of stomach. Resected in 1921.

B—Mr. H. D. Film of stomach taken in 1928. Patient is alive and well when last heard from in 1933.

3. A lesion at the pylorus provokes a syndrome which is most nearly characteristic: the patient, usually over forty and often having been free from previous digestive ailment, complains of failing appetite or complete anorexia, vague distress after eating, and ultimately of dull or severe epigastric pain. Vomiting, which is common, along with the anorexia, results in a marked weight loss. Unfortunately, the patient (and, at times, even the doctor) is liable to be misled by

the apparent insignificance of these early symptoms—the golden opportunity for cure is missed.

4. The frequency of the development of a carcinoma on the base of an old ulcer has been discussed for many years without establishing any universally accepted conclusions. Because all authorities are agreed that the two lesions are not infrequently associated, the casual relation of peptic ulcer to carcinoma is of academic interest only; as long as it is impossible to make an infallible differentiation between a chronic peptic ulcer and a carcinoma of the stomach, any lesion which is not definitely an ulcer or does not respond, both symptomatically and roentgenologically, to treatment should be regarded as malignant(6). The symptoms of this type of lesion show the characteristic chronicity, periodicity, and rhythmicity of chronic ulcer. Malignant degeneration is manifested often by a change in symptomatology: the pain becomes more constant and is no longer relieved by food; loss of appetite, weight, color, strength and frequently the appearance of coffee-ground material in the vomitus are noted as the condition progresses.

### METASTASIS(7)

The site of the earliest metastases of carcinoma of the stomach is the adjacent lymph nodes, after this the liver. Metastases on the rectal shelf—or rather implantations like those occurring in the Krukenberg tumor of the female pelvis—are common. Metastatic nodules in the neighborhood of the umbilicus should always be carefully sought for. Multiple metastases in the omentum produce abdominal masses and frequently ascites. The only site of early extra-abdominal metastasis is the supraclavicular lymph glands. Metastatic lesions in the lungs or bone are very rare.

### PHYSICAL EXAMINATION

Needless to say, a patient suspected of harboring a carcinoma of the stomach should receive a painstaking general examination. Evidences of marked weight loss, anemia or cachexia, the presence of metastases (a rectal examination should never be omitted) or a palpable epigastric mass are particularly important. The absence of a mass does not exclude carcinoma, as we hope to get our patient before this stage; its presence, however, is highly significant. The finding of an enlarged, nodular liver, a mass felt per rectum, more than one abdominal mass, ascites, enlargement of the supraclavicular nodes, or nodules near the navel are contra-indications to anything but palliative surgery. It should be borne in mind that a cervical adenopathy may be of inflammatory origin and a biopsy may, in certain cases, be indicated.

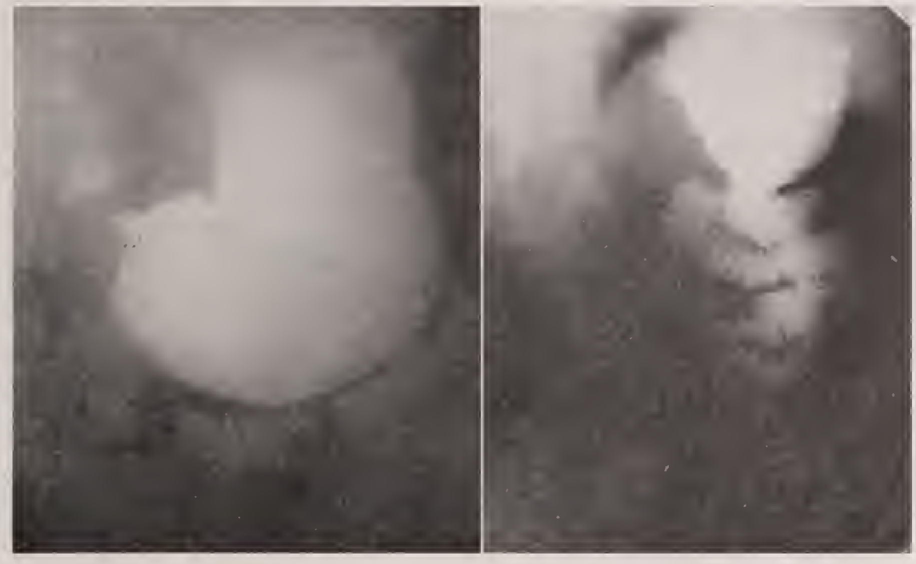

FIGURE 2

A—Mrs. H. B., age 53. Carcinoma in prepyloric area with marked obstruction. Resection in June, 1934.

B—Mrs. H. B. Film of stomach taken in January, 1935. Patient is apparently well and free from gastric symptoms.

### LABORATORY FINDINGS

Routine urinalysis, complete blood count, and Wassermann test should always be done. The procedures of particular interest are the gastric and fecal analyses. The continued presence of occult blood in the stool of a patient on a meat-free diet, other sources of bleeding being excluded, is a significant finding, as is the persistent presence of blood in the gastric contents. There is a great deal of misconception concerning the diagnostic value of achlorhydria: accordiing to Balfour(7), in fifty per cent of proved cases free hydrochloric acid is present. The same author, quoting Gray, states: "The rate of curability was definitely higher among those with achlorhydria than among those with hydrochloric acid, and apparently the higher the acid value, the less the prospect of cure." Obviously, then, one cannot exclude carcinoma by finding free hydrochloric acid in the stomach contents.

### X-RAY

As previously stated, the most valuable means—if not the sole means—of making an early diagnosis is a careful x-ray examination. The fluoroscopic examination is most important and should never be omitted, because it affords an opportunity of determining the permanence of a filling-defect, the absence of peristalsis from a suspected area, and, not infrequently, enables the radiologist to palpate a mass which the clinician has been unable to feel. It, furthermore, permits examination at all stages of the filling process and with the patient in different positions. Space does not permit a detailed discussion of this phase of the problem; I will merely mention some of the more important signs of gastric neoplasm. The roentgenologic manifestation of carcinoma of the stomach, according to Carman(8), are: the presence of a filling-defect, alterations in pyloric function (gaping or obstruction), perversion of peristalsis, altered motility, alteration in size of the gastric silhouette, rigidity, etc., etc. When in doubt, one should examine the stomach repeatedly, both before and after the administration of antispasmodics. A patient with a questionable gastric lesion should never be dismissed from observation until a positive diagnosis has been established; if this is impossible, exploratory laparotomy is urgently indicated.

Is cancer of the stomach curable? There is proof enough to convince the most skeptical that cancer resected before metastasis has occurred is curable. Balfour(7), of the Mayo Clinic, has reported: "that fifty per cent of the cases operated upon while the disease was still confined to the stomach wall are alive and apparently well after five years and that eighteen per cent are alive and apparently well regardless of the extent of the disease at the time of operation." It is unnecessary to emphasize the pitifully small number of five-year cures as compared to the total incidence of the disease. Even though Balfour's figures represent the result of practice under ideal conditions which can not be duplicated outside of a large clinic, they should help dispel some of the hopelessness—one might even say fatalism—with which most practitioners face this disease.

Although the responsibility of determining the operability of a given case must rest with the surgeon, the findings of both medical man and roentgenologist constitute a very vital part of the information upon which this decision should be based. A final opinion of inoperability is the equivalent of a death sentence—the mortality rate of untreated cancer being 100%—and should never be formed lightly. Distant metastases preclude any possibility of cure; five-year cures have been reported, however, with involvement of the adjacent glands(10). In general, lesions in the antrum offer the best chance of resection; those in the middle third are questionable, and those at the fundus are usually inoperable. Size is not a good criterion of operability, because a large growth is frequently well defined and resectable, whereas an infiltrating carcinoma is often found to be inoperable and yet has produced no palpable tumor. Severe pain, dysphagia, and fixation of the tumor-mass are signs of bad omen. An application of the principle of the "golden rule," if it is ever needed, is needed here. With everything to gain and nothing to lose, the taking of a "gamblers chance" in an apparently unfavorable case is occasionally followed by an unexpectedly good result.

We know of no better way of closing this discussion than with the following statement of Alvarez(9): "The profession must be encouraged to take better care of the forgotten man: the patient with an inoperable carcinoma. Most of us physicians hate to see these patients. We feel uncomfortable when talking to a man who has just been condemned to death; we hate to see the suffering in the faces of his relatives; we don't know what to do with him, and as a result, too often, we say as little as possible; we urge him to go home, and we abandon him to the rapaciousness of the quack who lies waiting for him around the corner."

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# TREATMENT OF LYMPHOBLASTOMA

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The lymphoblastomas consist of various forms of tumor-like enlargements of the lymphatic system, some of which are chiefly inflammatory, some distinctly neoplastic and some intermediary. With the advent of irradiation into the field of therapy, the roentgen rays have been found not only valuable for relief but the only known form of successful treatment. Increasing experience has lead to the recognition of definite clinical types of the disease, and to the expectation of consistent results according to the pathology encountered.

In a recent contribution Desjardins(2) has pointed out the importance of the role of chronic inflammatory processes demonstrable in almost every case of lymphoblastoma. This indicates not only the important bearing on the cause of the disease, but very strongly emphasizes the significance of the same causative factor in all forms of cancer. We are concerned not only with the necessity of relieving the patient's suffering, but with the importance of early eradication of all farms of chronic infectious residues which may be a factor in the production of malignancy, such as infected tonsils, teeth, mastoids, gallbladder, genital tract, etc. Tuberculosis also must take its place along with other chronic inflammation, when preventive measures are considered.

The effectiveness of relief by roentgen therapy is highly satisfactory. Advanced cases improve, sometimes in a dramatic manner. The best results are found in the early stages of the disease and as a rule in the younger patients(6) with slowly progressive forms. Many patients will be returned to normal for two to five, and even ten, years. A few are on record alive and enjoying good health beyond this time. There is first relief from mechanical pressure, wherever it may be. Also destruction of the infiltrating masses will in time lessen the toxic absorption, which in turn relieves the temperature, malaise, loss of appetite and strength. Thus improvement takes place. If the irradiation is timely and carefully given, the blood stream may return to normal and the patient to activity.

No roentgen therapist can undertake the care of these conditions without an intelligent scheme of classification of the different types. Ewing(3) offers a plan based on the anatomy of the lymphatic system. While there are many defects to this scheme, due to a lack of knowledge both as to the origin of the cells and their physiologic characteristics, yet it is a place to start from, and such a place is necessary.

| ORIGIN | ANATOMICAL TYPE | CLINICAL TYPES |
|---|---|---|
| Lymphocytes | Lymphocytoma | Simple lymphoma<br>Tuberculous lymphoma<br>Lymphatic leukemia<br>Pseudoleukemia<br>Malignana lymphocytoma |
| Reticulun cells | Large round cell hyperplasia or neoplasia | Granuloma malignum<br>Myeloid leukemia<br>Hodgkin's sarcoma<br>Large cell lymphosarcoma |
| Endothelial cells | Endothelial hyperplasia or neoplasia | Endothelial hyperplasia of tuberculosis<br>Endothelioma |

The pathologists have not yet arrived at any sort of uninimity of opinion in some of the forms mentioned, yet it is clear that lymphoid tissue responds to irradiation by inflammatory hyperplasia far more actively than any other tissue. Lymphoid tissues are relatively more mobile than fixed, and lymphocytes are not only ameboid but are structurally placed in easy access to lymph and blood pathways; hence tumors and tumor-like processes in lymphoid tissues are frequent, and as a rule tend to become quite different to the normal structure.

It is well known that but three elements make up the lymphatic glands, in which hyperplastic changes may occur: (1) lymphocytes, (2) reticulum, and (3) endothelia cells and cavernous tissue.

It is noticeable that at the beginning of the list there occur frankly hyperplastic changes, which are inflammatory, and at the other extreme is the well-designated neoplasm spoken of as the endothelioma. It would seem logical to assume that the common chronic adenitis(7), such as may be seen following mouth and sinus infection, is but a stepping stone from the inflammatory to malignant conditions. We must not lose sight of the possible effect of long-standing tuberculosis, causing hyperplasia by toxic irritation, and occasionally, more often than may be expected, the onset of lymphoblastic growth.

The most common clinical types showing tumor-like hyperplastic changes are (1) simple lymphoma; (2) leukemia, lymphatic and myelocytic; (3) pseudoleukemia; (4) Hodgkin's disease; (5) lymphosarcoma. These are all most sensitive to the roentgen ray. Some cases may prove apparently resistant or become so after several series of roentgen therapy, but as a rule they all respond promptly. So trustworthy are the effects of this form of treatment that it is often used as a diagnostic test and may be more valuable than the microscopic. Too often the pathological side is so stressed that the end of case studies seems to be the meticulous and painstaking explanation of the histological changes seen in the pathological slide. Important as the pathology is, the therapist must be a clinician and know thoroughly the clinical types with which he is dealing.

Roentgen therapy should be applied only after obtaining a careful history from the onset. with a diligent search for long-standing inflammation, as in the residues of focal infections. and after the determination of the clinical type and a study of the blood and tissue. If the case is seen late, profound anemia and other blood changes may be present, and treatment may not be indicated. The slower growing types, those with few or no blood changes, offer the best prognosis. All of them toward the end tend to show confusion in blood states. The earlier the lesions may be treated, the better the response, the nearer return to health, and the longer intercurrent periods of relief. In certain forms of acute types, like the acute leukemias, so rapid are the blood changes that any treatment may not avail.

The object of the roentgen therapy is to destroy the lymphocytes, and when reticular or endothelial cells are present to also destroy them. The lymphocytes are the most sensitive of all cells.

If the growth is localized, as it often is in bone, mediastinum, or even in the lymph nodes, treatment through and through this area may be sufficient. But if there is a progressive lymphadenopathy which is becoming generalized, it is well to give more wide-spread irradiation, often over the entire cervical areas, the thorax and axillae, the abdomen and the upper thighs. Jenkinson(5) has changed his technique after much experience and seldom treats any areas except those greatly involved. He believes that wide-spread treatment brings about early blood deterioration. This may be a clinical observation and the cause lie in the use of too high voltage or too much intensity.

Most roentgenologists employ medium voltage to the readily accessible areas. One hundred and thirty-five to one hundred and fifty K.V.. with .25 cu. is the common procedure, reserving the higher voltages for the resistant types or the more deep-seated glands in heavier patients. It is most important to keep in mind that the necessary depth dose is not great, and that it is the amount of irradiation which is absorbed that counts. The rapid absorption and disappearance of the swellings is not so important as the carefully administered dosage. 100 r to 150 r are the doses usually sufficient to apply to the areas as they are treated. The treatment may at the first and second series be general. After that, local application is generally adequate. Mediastinal and bone involvement requires consideration of increased depth dosage(4). In children(6) under twenty, as a rule the prognosis is better. The German therapists(8) advocate a small fractional dose as a rule of about 125 r.

In a study of fifty cases, which have been seen and treated by the author in the past fifteen years, ten of them in the past two months, careful search has been made to determine the constancy of focal infections as a possible predisposing cause. A history of or actual chronic inflammatory residues have been found in almost every case. The different types have been observed. falling readily into Ewing's classification. The response to irradiation has been in keeping with the opportunity for carefully planned treatment. Of the possible errors in treatment which stand out, over-dosage has been the most apparent. The unusual number of cases of tuberculosis in the authors' group has been out of proportion to the experience of most observers. Undoubtedly this is due to the small number of cases observed and the preponderance may be discarded. The tubercle bacilli must take its place along with the staphylococcus, the streptococcus, and other pyogenic bacteria. In fact it is looked upon as a secondary infection in the glandular system. Two of the recent cases have just been seen, the lymphadenopathy has disappeared and the blood stream is normal to all routine tests. Both of these have had marked resistant glandular masses in the neck and mediastinum, with definite secondary anaemia as well as temperature, loss of weight and biopsy specimens. Syphilis has been a rare factor in the series.

Irradiation is the only successful treatment. Removal of focal infections and the use of symptomatic remedies long known, are essential for aids to roentgen therapy. Some patients in extremis have improved and have been made comfortable. Some have enjoyed a period of good health for several years. Undoubtedly many lives have been lengthened. The longer treatment is delayed, the poorer is the prognosis.

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# CANCER, WITH SPECIAL REFERENCE TO PALLIATIVE TREATMENT*

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Cancer is a baffling problem. Statistics indicate that in spite of all efforts to curb it, it is on the increase. Whether this is more apparent than real is not quite clear. It is, of course, well known that a much larger percentage of the population live to attain cancer age than formerly, also it is an accepted fact that a larger percentage of cases of cancer are correctly diagnosed than a generation ago. Nevertheless, even after these facts have been taken into consideration, it appears that cancer is on the increase, and that in spite of the laudable efforts of the profession, especially those of the American Society for the Control of Cancer, to prevent and cure the disease.

The cause of cancer is still not found; at least there is no unanimity of opinion as to the cause. Some years ago I heard the late Dr. A. J. Ochsner, in a clinic before the Sioux Valley Medical society state that he was positive that cancer is an infection. Some time later I read a statement by Dr. J. E. Summers that he believed that the cause is an infection. On the other hand the leaders in the American Society for the Control of Cancer say it is not infectious. The late B. B. Davis, who had made a thorough clinical study of cancer, was also of that opinion, and it may be taken as the orthodox opinion in the profession that cancer is not infectious.

As I am not orthodox in religion, nor do I usually register with the majority in politics, so it is quite natural that I am not always orthodox in medicine. Obviously my observation does not cover any large number of cases but several incidents in my experience have been rather striking evidence in favor of the theory that cancer is infectious. I have observed several cases where man and wife died of cancer, but the most striking experience was in a family where I saw four members die of this disease. The father died from cancer of the liver, the mother from cancer of the stomach, and the two daughters who stayed at home and cared for their parents both died from cancer which was primary in the breast, while three other children, one son and two daughters, who did not stay at home during the illness of their parents, are still living and healthy.

Cancer is considered an inevitably fatal disease unless thoroughly eradicated by means of surgery or radiation. It is on this point that I wish to dwell and my case reports bear particularly on this problem.

Various cancer cures have been heralded from time to time, most of them by quacks, but a few in good faith, all of which have fallen short of expectations. Some years ago we heard of the Blair-Bell treatment with colloidal lead. Somewhat later, perhaps, colloidal gold was advertised, and more recently the Coffey-Humber treatment with suprarenal cortex extract. With the Blair-Bell treatment I have no acquaintance. Reading of the recommendation of colloidal gold by Dr. Edward M. Ochsner of Chicago (brother of the late A. J. Ochsner), I tried this in several hopeless cases some years ago. In some of those cases there was definite indication of temporary improvement and prolongation of life. After deciding on this report I wrote Dr. Ochsner, asking if he still uses colloidal gold rather than suprarenal extract in inoperable cases. I quote from his reply:

> "More recent experience has convinced me that the statements in my reprints of some years ago are very conservative and that colloidal gold is a very valuable remedy in all inoperable cases of carcinoma and following extirpation as a prophylactic. My observations also convince me that in these cases it is more valuable than either x-ray or radium alone. While the percentage of cures is very small, it does cure an occasional case where surgery can no longer be employed, and it is particularly valuable in reducing the pain in inoperable cases. I have records of many cases who were able to get along comfortably

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*Presented before the annual meeting, Nebraska State Medical Association, Lincoln, May 22-24, 1934.

with a minimum amount of opiates, and this in itself is a great boon to these sufferers."

We have probably all heard of faith cures in cases of cancer. Some few years ago we had an evangelist holding meetings in our town, and after a period proclaimed his ability as a faith healer. I heard of no incurable disease being cured by him, but heard him speak of a case of cancer of the face which was cured by a faith healer.

Two years ago I had a patient, a widow with five small children whom I had treated for peptic ulcer. At one time I feared perforation and called my colleague, Dr. Benson, in counsel. We decided to wait and watch for a few hours before deciding on operative procedure. She improved and in a couple of weeks left the hospital an ambulatory case. Gastric analysis and x-ray later indicated peptic ulcer but gave no evidence of perforation. Some time later she felt a lump in her stomach. On seeing her, the lump appeared to me to be in the abdominal wall and I thought I was dealing with an epigastric hernia. On operation, however, the lump proved to be in the pylorus. Dr. C. R. Kennedy who operated made a clinical diagnosis of inoperable carcinoma because of involvement of the mesenteric glands, and did a gastroenterostomy, unfortunately without any biopsy. The prognosis, of course, was bad, the tumor was about the size of a small adult fist. I told her mother that the patient had cancer and was not expected to live long. The patient and her mother are both members of the Swedish Evangelical Free church, many of the members of which believe in faith healing. Friends were called together, prayer was offered, and the patient's mind was put thoroughly at ease. Fortunately, also, she had saved a $3,000 insurance policy, in spite of financial difficulties. I tried to persuade her to let me give suprarenal cortex extract, but she allowed me to give only one dose, feeling that if she took this she did not have implicit faith in the Almighty, so I did not press the treatment. Shortly after this I went away for about two months. On my return I stopped at her farm, finding her up and around feeling better than for a long time. She refused to allow me to examine for the tumor, but said she would stop some time at my office. This she never did until this spring. She was well and active for about a year and a half. Last winter I was called to attend her for abdominal pain. On examination, to my great surprise, there was no tumor. The patient, however, was very anemic, had dark stools and I still feared some lurking danger. Hemocytology indicated a secondary, rather than a primary anemia. Frequent stools indicated some lesion in the colon, but no tumor or lump could be found.

Therapy to relieve a colitis was instituted together with blood tonics. Improvement was very satisfactory but a little later I was again called to relieve abdominal distress and pain. At this time she was vomiting, showed evidence of considerable blood in the stools and other symptoms of peptic ulcer, so ulcer regime was instituted with satisfactory progress. On the 9th of this month I did a gastric aspiration after an Ewald test meal and found free Hcl 40, total acidity 80. X-ray indicates no pathology in the stomach and a colon fairly normal.

Now the question arises, was this an inflammatory tumor or was it carcinoma which has spontaneously healed. Discussing the case with Dr. Hunt he states that he has considerable respect for Dr. Kennedy's judgment but doubts spontaneous recovery from cancer. To me the tumor did not appear like an inflammatory process.

I have treated two cases of slow growing carcinomas with radiation alone over several years.

One died of cancer late in 1923, about six and a half years after my first seeing her. She was a woman of about 75 then. She was referred to me by Dr. Westervelt of Craig for a lesion on the dorsum of the left hand. There was metastasis in both epitrochlear and axillary glands. This was before I possessed a Coolidge tube. The primary lesion was resistant to fractional doses of x-ray but was eradicated by means of carbon dioxide snow, with use of which Dr. Westervelt was familiar. The metastases disappeared under radiation. About two years before her death she returned to me following a stay at the Tekamah hospital. She now had a large mass in the sigmoid which the late Dr. Cooper diagnosed as cancer and I concurred in his diagnosis. The patient at this time was in severe pain and decidedly ill. I gave deep therapy in fractional doses over several months' time, when the patient was quite comfortable and the mass had almost disappeared. She died, presumably, from cancer, some two years later, at which time I did not see her.

Another case which is rather striking is still under my care.

He first consulted me about thirteen years ago for some keratoses on the face and a small, firm lump on the anterior tibial region of the leg. He gave a history of having a lesion removed from the tip of the nose about twelve years prior to this. This lesion had been pronounced cancer by Dr. Hyde of Chicago. It was treated with fractional doses of x-ray by Dr. C. R. Kennedy of Omaha.

The mother died of cancer of the face after an operation suffering a great deal, hence the patient refused any surgical measures. He was rayed both over the lesion of the leg and the keratoses of the face by fractional doses of x-ray. The lesion of the leg soon disappeared. Some of the keratoses did not recur while others did. About two years ago I rented some radium. Some lesions which had been resistant to the x-ray disappeared after 10 milligrams of radium while one persisted to recur after two exposures of nine hours each of 25 mg. By this time there were metastases in the submaxiliary glands (the lesion was on the lip). I decided that the case was no longer one for me to handle and sent him to a specialist in Omaha. As the patient still refused surgery including diathermy, a tremendous dose of radium was given at each of two sittings. It appears after almost a year that the lesion has finally been eradicated but other lesions in the face are appearing and on these I am still working.

Two cases with primary cancer of the breast followed by metastases seemed to respond in a marked way to colloidal gold. One had a metastasis in the femur. sustained a fracture with considerable displacement. The fracture united and the patient lived in comparative comfort for some time.

Three cases have responded in a marked degree to suprarenal cortex.

Case I. Mrs. A. O.,' had a radical hysterectomy after radium, for cancer of the cervix. I did not treat ıer until after her operation when she came to me fter recurrence. Suprarenal cortex together with -ray kept her in fair comfort for about two years. 'he died last January from cancer of the sigmoid, ıaving taken suprarenal cortex for about two and half years. She had practically no morphine nor ny opium derivative for the relief of pain but was elieved sufficiently by amytal compound toward the nd when she became apparently resistant to the exract, or perhaps did not receive a sufficient quantity.

Case II. Miss E. H. was operated on by an Omaha urgeon early in 1930. She had previously to this ıeen treated by an osteopath for a lump in the ıreast. At the time of operation there was metastases n the axiliary glands and probably in the hip as the ısteopath had been adjusting this for some time. 'he came under my observation first after the operaion in the spring of 1930. She complained of pain n the hip. There was considerable nasal pathology ınd badly infected tonsils so I put her on salicylate reatment and excised her tonsils. There was coniderable improvement but still she complained of ıain in the hip. X-ray now revealed lesions on the rest of the ilium. in the acetabulum and around the rochanters. This was shortly after the Coffey-Humıer treatment was first announced. The patient was vorking in a local bank, one of the directors of which s a practicing physician in Hollywood. I read a ather extensive report made by Drs. Coffey and Humber in San Diego of that year and after a famly consultation the patient was sent to a relative n Los Angeles, and through Dr. Newmann was reerred to the Los Angeles Coffey-Humber clinic. She remained there a year. When she left she could hardly walk; when she returned she was apparently well and remained well for almost another year or more than a year and a half, after first starting the treatment. Then the pain in the hip returned. There was also considerable pain in the back. She continued the extract three times a week but without ıvail. Gradually growing weaker she died July 31, 1933.

The case mentioned in the beginning of this paper was Mrs. C. S., age 30. She first came to me about a lump in the breast, March 8, 1928, stating that she had been aware of it for two years. There were already exillary gland metastases.

Dr. Kennedy doubted its malignancy until the pathologists report on frozen section was in. A radical operation was performed.

Report of the operation was as follows:

"Number of nodules upper outer quadrant right breast, some enlargment in axilla. Pathological report carcinoma, operation, radical removal of pectoralis, major and axillary glands. Did not remove pectoralis minor."

The operation was followed by x-ray. There was recurrence of glands and tenderness at the site of operation in about a year. More x-ray therapy was given and a gland excised and sent to pathologist with a negative report. Lump excised March 24, 1931, was reported positive by the pathologist. More deep x-ray therapy was given. In October the patient was referred back to Dr. Kennedy. His report stated that no metastases could be found in lung or bones at this time but he advised excision of another lump at the site of the primary operation. Another course of x-ray was given.

In September, 1932, the patient reported with pain in back and right hip and abdomen. At first I hoped that the trouble was a focal infection and directed my treatment accordingly with no effect. In November she began to fail rapidly, complaining of pains in chest, thighs and back. I had not started the suprarenal cortex because it had failed to relieve in two other cases. The family wanted consultation and so I referred her back to Omaha. I quote from Dr. Kennedy's report of November, 1932: "X-ray examination shows extensive metastasis throughout the sacrum, lower abdomen, and entire pelvis, so am afraid she will only last a short time. We are giving her a couple of x-ray treatments which I think will help her pain, will also give her a few doses of suprarenal cortex. She will probably go home Thursday or Friday and you can do what you think best about keeping her x-ray and suprarenal cortex up. I do not think she will live any more than three or four months." She was markedly improved after this. The husband was taught to give the extract and she was fairly comfortable until in February, 1933, when she had a pulmonary infection and I expected her to pass on. She improved, however, and being anxious to return to Omaha she did so as soon as possible. She made several trips down there at intervals, the last one being in March of this year. At this time she contracted another chest infection and died suddenly from heart failure after being enough better to again give us some hope of improvement.

In conclusion I wish to state that while cancer is fatal in the great majority of cases unless thoroughly eradicated by means of surgery or radiation, there are a sufficient number of cases that are apparently hopeless that do not end fatally to give cause for hope which is so eagerly grasped at by the unfortunate patients. It is my opinion based on observation and reports that—

1. An occasional case of carcinoma recovers spontaneously.

2. A few cases are aided in recovery by means of remedies such as colloidal gold, suprarenal cortex, and radiation.

3. Life can be prolonged and made more bearable by the means enumerated, in a great many cases that are not curable.

4. It appears to me that while colloidal gold is of value, suprarenal cortex is superior as a means of treating inoperable cancer.

5. Rapidly growing cancers are not benefited by any of the above treatments and are practically always fatal.

## DISCUSSION

DR. HERBERT DAVIS, (Omaha): The subject of palliative treatment in cancer is certainly a timely one. There is too much of a tendency on the part of both the public and the medical profession to throw up their hands when they hear the word "cancer," and not do all that could be done both in regard to cure in early cases, and also in regard to making the patient's life from then on more bearable.

First of all, we must distinguish between the types of cancer. All types should not be treated surgically or by x-ray. We should have a microscopic section so that we know what we are handling. It is easy to speak of cures in some cases when it wasn't cancer at all. I do not think we should decide as to the course of treatment without a definite microscopic section, and often pathologists disagree. You must fit the whole picture together.

A few years ago, my father analyzed a group of cases of carcinoma of the breast, and found he was curing more than most leading surgeons all over the world. The answer was some of those cases were benign, although each had a frozen section.

In regard to spontaneous cure, I think most authorities agree that that does occur at times. My father had one such case proven microscopically to be a basal cell carcinoma, many years ago.

In regard to the prognosis, I find myself less and less able to give an accurate one. We get surprises—sometimes good; sometimes bad. A month ago a woman came into my office who ten years ago had Type Four carcinoma of the hreast, with the axillary glands involved. A simple mastectomy was performed. X-ray therapy was not then attempted. Everything was adherent. She walked into my office, without further treatment, perfectly well.

I had an interesting case which I saw a week ago. Four years ago I removed a breast for carcinoma. Two years ago I removed the other breast for carcinoma. One year ago she came back with hundreds of metastases in the scapulae, clavicles, sternum, innominate bones, and the heads of the femurs. Her hemoglobin was down to 50. We had her in the hospital for two weeks with daily x-ray therapy to all the bone metastases. At the present time she looks well, and those metastases look better. She is going to die of carcinoma, but she is living a normal life, prolonged at least a year.

I had another case with a lot of pain after a squamous cell epithelioma of the hand, with metastasis in the axillary glands. I amputated the arm and dissected the axillary glands out, because such cases do not respond well to radiation, and for eleven months she went along well. Now she has pain. She won't respond to x-ray. A month ago, I had Dr. Keegan cut the sensory nerve roots which has stopped the pain.

I think measures of relieving distress are too often neglected. In any case of cancer, let's not give up. Let's do all we can for that patient. I do not mean to do a foolish operation. X-ray therapy we find in many types very beneficial. I thank you.

DR. SWENSON, (closing): I wish to thank Dr. Davis for his discussion.

I had hoped that Dr. Kennedy would be here to give his impression of his case with cancer of the pylorus, of which I spoke. I want to speak of one other case who apparently had cancer and who was apparently cured. The case went to the Swedish Covenant hospital in 1918. I had made a tentative diagnosis of cancer of the bowel, and Dr. Bliss confirmed my diagnosis of cancer of the cecum. I thought the patient came home to die. I saw her later with a mass of enlarged inguinal glands. She was very ill. The swelling of the glands subsided, however, and she improved. Finally she came into Dr. Benson's hands, and he says that she had appendicitis. It looks suspicious, considering that the lump was in the cecum. It was persistent, however, even after the patient had been in the hospital for two weeks.

I wish to show Dr. Hunt's plates of Case No. III (Shows plates to indicate its appearance before and after its evident regeneration.)

I do not know whether the x-ray did that, or if the suprarenal cortex did, or whether it is a spontaneous improvement, showing what nature can do when man has failed. I have seen cases of patients who get better, and then the disease will flare up again, and the patient will die. Probably some get well spontaneously.

# THE ROENTGEN-RAY TREATMENT OF MALIGNANCIES OF THE FACE

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In the past thirty-five years almost every known disease of the face has been treated experimentally with roentgen rays. As a result of all this experience, it is now known that over eighty cutaneous affections are more or less amenable to the roentgen ray. In some diseases roentgen ray treatment is the only method that will cure or that will afford temporary relief. In many instances the cases must be carefully selected, or irradiation must be combined with other forms of treatment in order to obtain the desired result. Roentgen rays produce permanent cures in a relatively small number of skin diseases, but they very frequently relieve distressing symptoms and cause reasonably rapid resolution of eruptions. Whether or not the result is temporary or permanent depends on the disease and its cause.

Today we find it useful in actinomycosis, acne, verruca, furunculosis and carbuncles, epithelioma, keratosis, eczema, keloids, sarcoma, sycosis(1).

The marked radiosensitiveness of young cells, cells in the stage of division, embryonic tissue and lymphoid tissue, explains theoretically the therapeutic action of x-rays on malignant neoplasms, the granulomas and some of the benign new growths, epitheliomia, etc. No one has yet been able to evaluate the psychologic effect of roentgen ray treatment. In some instances the psychic response may be partly or wholly responsible for the therapeutic results. At times the recovery may be spontaneous and coincidental with such treatment. However, the consensus of opinion is that in most instances the therapeutic result is due to the direct biologic effect of the radiation.

As Pusey(2) said many years ago: "It is, in fact, hardly too much to state that roentgen therapy is the most widely useful addition to the treatment of skin diseases that has been made."

In my opinion and experience, external irradiation occupies the leading position and represents the first step in treatment of every case of cancer of the face that is at all acceptable for treatment For many years remarkable results have been noted in occasional cases from external therapy We now know the reason for this: It is not due to the intensity of the treatment but to the fact that the growth is an undifferentiated tumor and hence particularly radiosensitive. Such experience, however, coupled with careful histologica studies of the tissues from such growths, have paved the way for the reasonably and progressively efficient external therapy of the past few years. With improved therapeutic equipment and the accumulated experience in histological interpretation, plus reasonable accuracy in the calculation of tissue dosages, it is now possible to deliver an intelligent and effective dose from an external source of radiation.

When we compare this advance with the empiric and inefficient external therapy of even ten years ago, it indicates something of the possibilities which the future holds for external irradiation. The surface has scarcely been scratched. No single factor, in what is today regarded as an efficient modern therapy set-up, can be accepted as the ideal. We know from experience that clinical results have steadily improved with the administration of greater quantities of radiation of shorter wave length. The timing, quantity, and periodicity of the individual exposures making up the total dose are far from settled. The clinical effects are not entirely in keeping with physical laws. There comes a point beyond which clinical effects are biological reactions diverge from that which might be expected from physical calculations. Improvement in the radiation therapy of cancer of the face lies chiefly in the gradual working out of these various factors. External irradiation is coming all the while to occupy a more prominent postion in this phase of the work.

Roentgen radiation is the only practical source of this external radiation. Radium, in sufficent quantity, serves as an excellent experimental guide and stimulus towards improvement in roentgen therapy. Beyond this it is not feasible from an economical standpoint and its use for external irradiation, in the manner usually employed, is to be deplored.

In the treatment of cancer of the face, surface or contact applications of radium, no matter how heavily filtered, have no place. In a very few instances, and particularly with the lip, applications may be made to advantage with an intervening distance of 1 or 2 centimeters. Even in these there is an element of needless uncertainty which could be avoided by resort to interstitial therapy. The usual surface application is not sound from a physical standpoint. The ratio between undesirable surface effect and therapeutic effect at depth is such that a lethal tumor dose may mean gross permanent damage to the surface. Radium burn scars are unstable and painful. Blood supply to the surface epithelium is interfered with directly as well as by the fibrosis underlying the scar. Sensory nerve fibrils caught in the zone of fibrosis are extremely hypersensitive(3).

It is general knowledge that cancer never begins in normal tissue, and certainly we have never seen any cancer that we believe originated in normal tissue. Fortunately the skin is an organ that can be easily observed by the patient and by the physician. The slightest roughness of the skin is usually noticeable by the patient, but because of the fact there is practically never any pain or marked disturbance at the beginning of these lesions, they are frequently ignored.

Cancer of the face nearly always develops very slowly and insidiously, so that the difference between one month and the next is not great. This fact develops in the mind of the patient a sense of indifference or security. We believe, however, that it is the duty of the physician to advise the patient to have any lesion of the face restored to normal as promptly and as thoroughly as is possible.

Moles, and particularly the pigmented moles, may occur singly or in large numbers on a patient. They may have been present early in life or may appear later in life, but we believe they are always congenital in origin. It is probably true that not more than one in a thousand, or at least one in a large number, becomes malignant, but when a pigmented mole does become malignant it is one of the most serious conditions with which we have to deal. If not treated most skillfully when the change from a benign condition to a malignant one occurs, extensive metastasis is likely to follow, and the patient is likely to lose his life. Therefore, it is probably best to remove all moles, but particularly all pigmented moles, as a precautionary measure.

Likewise, it is advisable to remove all warts and particularly senile warts, any abnormal crusts, fissures, or chronic ulcers. These can be eradicated under local anesthesia at one sitting by dissection or electrocoagulation if skillfully done. If they are not already too deep, the scar following is of little or no significance. Large scars, after a period of twelve to fifteen years, often develop epitheliomas, usually beginning as small fissures or erosions, then gradually spreading. This type of epithelioma is squamous-cell. Generally it is advisable to remove the entire scar by electrothermic dissection, and, if the wound is large, following that, after a period of about three weeks, by skin grafting. Under these circumstances, we have had only one failure. Moles, warts and scars, and epitheliomas in scars are usually not successfully treated by irradiation alone, but are best destroyed by electrocoagulation.

Epitheliomas of the skin may occur as single or multiple lesions. However, they are usually single, and usually develop on the exposed parts of the body, but they may occur anywhere. It has been thought that epithelioma of the skin is practically always basal-cell in type. This is a mistake, for our records show approximately 15 per cent to be of the squamous-cell type, and it is well known that any squamous-cell carcinoma may give rise to metastasis. This fact must be kept in mind because in dealing with a squamous-cell type of carcinoma, one must not only treat the local lesion, but it is advisable to treat also the associated lymphatics.

The favorite locations for squamous-cell carcinomas of the face are in the temporal region, the ear and its vicinity, the lip and in any scar tissue, but this does not warrant us in concluding that all of these are squamous-cell nor that all other regions are not involved at times by squamous-cell carcinoma. For that reason, in practically all instances, we take a biopsy at the time of our treatment.

The treatment of epithelioma of the face will depend in great part upon its size, depth, duration, and location. The records in literature show that between 70 and 90 per cent of epitheliomas of the face can be cured by irradiation, either with radium or x-rays, and this is undoubtedly the preferable method of treatment in any location where a slight scar is either objectionable or a serious matter⁽⁴⁾.

In small growths it is very important that a destructive dose of x-ray be used, with a time factor extending over one to several days. In larger growths the time factor may extend one to three weeks. We aim to produce as little fibrous tissue at the site of growth as possible, and yet be sure that no cancer cells are left in the tissues, which at a future day may give rise to a recurrence. In the past, small prolonged treatments have not proven the best method and today we are seeing a marked improvement. Every case must have careful consideration and then a vigorous campaign carried out to be successful in destroying the malignant cells in a circumscribed area. Attention should also be given to possible metastasis of cervical glands in the neck especially on the side that has the primary involvement. It is good practice to give heavy filtered x-ray over the neck and be sure that the dose is the maximum skin tolerance. As we must be sure that later it will not recur in some cervical gland. In fairness to the patient a careful follow-up examination must be maintained and the patient impressed with this important detail. We can now assure a patient that any small malignancy of the face can be cured, when treated by a physician who has given this field special study and attention. It is the careful attention to every detail that assures the patient of a good result. By this method we should be able to show the public that their best welfare is looked after and that the quack is a danger that they should avoid. The fears of a surgical operation is always uppermost in the mind of a patient and the reassurance that such will not be necessary is bound to bring the use of the x-ray in a very favorable light with a person that needs attention for a small growth that has not been active in giving pain or discomfort. The important point is to have these lesions attended to early and thus assure the patient that all worry is over, that the treatment is not burdensome and good results may be expected.

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# CARCINOMA OF THE BREAST

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The study of carcinoma in general is very important to all of us, as it ranks second in the causes of death. The mortality statistics of the United States Department of Commerce for the year of 1930 show that there were 1,343,356 deaths in the registration area of the United States. Of this number 115,265, or 8.6 per cent of the total, were due to carcinoma. Of the carcinoma deaths 10,912, or 9.5 per cent, were due to carcinoma of the breast. This means that nearly one per cent of all deaths in the United States is due to carcinoma of the breast.

In this discussion I wish to emphasize two main points—first, the diagnosis of carcinoma of the breast and, second, the treatment. The diagnosis is extremely important because, unless a new discovery is made, our cures depend on the early treatment while the disease is still confined to the breast itself. In attempting to get early diagnoses, we are making the physical examination of the breast more and more difficult because early lesions are much harder to diagnose than lesions after they have progressed to the typical text-book description of a lump, with fixation to the skin and chest wall, retraction of the nipple, drawing in of the skin over it, enlarged axillary glands, etc. When we wait for these typical symptoms, the results of treatment are very poor.

On the other hand, to do a radical mastectomy with an incorrect diagnosis is an unfortunate thing. It will leave the woman with a deformity, with possibly some swelling of the arm and also slightly impaired function. Then, too, thinking she had a carcinoma, the fear of recurrence will be a cause of considerable worry to her.

Cancer education of the public has resulted in earlier examinations. Because of this, we are seeing early lesions, less than fifty per cent of which are malignant. Years ago, on the other hand, over eighty per cent of the lesions we saw were malignant. One disadvantage of this education is that people are more likely to worry. However, if they would see a competent physician who could tell them that it was a benign tumor and not likely to become malignant, they could dismiss it from their minds. On the other hand, if it were malignant, treatment could be carried out in an early stage.

This education has been quite generally carried to the public. I feel that many of the people have better ideas of carcinoma than some physicians. I do not wish to appear critical of the physician, but to prove my point and in the hope of stimulating interest, I am quoting the advice given to some of the patients we have seen at the University Hospital. The advice or treatment given in nine of these cases was as follows:

1. The physician lanced the lump getting a bloody, watery discharge, causing rapid extension and ulceration.

2. Four months ago the physician lanced a lump getting blood. It has been painful since then.

3. Eighteen months ago she was treated with salve for five weeks. This gave no improvement and she quit the treatment. Seven months ago she returned for treatment and was given more salve.

4. Five months ago her physician said to return so he could see if it was growing.

5. Six weeks ago she was advised to use hot packs.

6. The physician treated her for rheumatism without relief. Later she saw another physician who told her the pain was from the breast and gave x-ray therapy.

7. Fourteen months ago she was told by a physician not to be alarmed.

8. One year ago a physician told her it was a milk gland cyst. It has gradually enlarged since then.

9. Seventeen months ago she was told to return to the physician to see if the lump was enlarging. She did not return.

In taking the history there are certain points which we like to bring out. The age of the patient is important, because most of the cases occur between the ages of forty and seventy. In a recent study I made at the University Hospital seventy-five per cent of them occurred in this age class. However, being younger does not rule out carcinoma, as it may occur any time after puberty. The history of lactations and the question of whether there was any trouble with the breast at that time is important, especially so in regard to retraction of the nipple. In case this dates from a previous lactation with infection, it would not signify carcinoma; while if it had just come on recently, it would. The menstrual history is very definitely related to breast lesions as there is a slight change in the breast which sometimes causes pain and discomfort just before each menstrual period. This results from overactivity of the corpus luteum of the ovary and is not primary in the breast itself. The treatment in this type should be directed to the ovary rather than the breast.

Then we wish to find out the symptoms. Carcinoma usually starts as a single, solid, painless, steadily but slowly growing lump in the breast. Carcinoma is unlikely to cause pain or tenderness until late stages. Therefore, a history of discomfort points more to mastitis, which is a benign lesion. The question as to whether there are one or more lumps is exceedingly important. A single, solid lump usually indicates a fibroadenoma, especially in a younger woman, or a carcinoma in an older woman. In early stages, however, these cannot be distinguished and age is not a definite guide. If there are several lumps which are definite and not just a ropy consistency which we get in chronic mastitis, we think of multiple fibro-adenomata or chronic cystic mastitis. Considerable information is obtained by the rate of growth. If the growth fluctuates, some days being smaller than others, it is likely to be a benign condition. In case of malignancy we can determine a great deal about the prognosis by the rate of growth. A rapidly growing tumor or one showing early metastases to axillary glands is much more likely to be fatal than a slowly growing tumor. A slowly growing tumor of fairly long duration is likely to give a better prognosis than a rapidly growing tumor of only a month's duration.

We should ask about any discharge from the nipple not related to a pregnancy. A bloody discharge from the nipple, especially when it can be expressed by pressing on a certain area in the breast, is likely to be due to a duct papilloma or duct carcinoma. Either demands attention as a papilloma very frequently later becomes carcinoma. A watery discharge from the nipple, even when no lump is present, may be due to carcinoma. Cheatle reports four such cases. In the first case, palliative treatment was carried out, and the patient died four years later of carcinoma of the breast. In the second case the breast was excised and microscopic examination of the whole breast failed to reveal any pathololological lesions. In the other two cases the breasts were excised and areas of carcinoma were found. I personally have had one such case in which microscopically we found the ducts packed with actively growing cells with a questionable invasion of a lymphatic. We could not be sure whether this was a lymphatic or a small duct. In the former case, it would be definite carcinoma, in the latter a pre-cancerous condition. At any rate, a serous discharge from the nipple should be very thoroughly investigated.

We should also inquire for signs of metastases such as swellings in the axilla and swelling of the arm on that side. Swelling of the arm may be due to axillary involvement, to carcinoma causing lymphatic obstruction, to removal of lymphatics, to lymph gland destruction and scarring due to x-ray therapy, or to venous obstruction by scar tissue following mastectomy. The skin should be examined for small hard reddened nodules which are very likely to be skin metastases. These occur most frequently in very rapidly growing and rapidly metastasizing grade three and four carcinomas. They also may occur due to lymphatic spread following the removal of the breast. Mediastinal or lung involvement is indicated by chronic cough, dyspnea, hemoptysis, loss of weight, anemia, physical signs and x-ray pictures. Bone metastases may be indicated by pain in the bones and pathological fracture, also the x-ray is typical. With vertebral metastases there may be pain following nerve roots. I have seen such a case erroneously diagnosed as gall-bladder disease. Liver and abdominal metastases may be indicated by recent indigestion, pain, ascites, etc. Paralysis may indicate metastasis to the brain.

Next comes the physical examination of the breasts. By inspection you will notice variations in size and shape of the breast; changes in the skin, such as dimpling, retraction, bulging and reddish discoloration which may accompany involvement of the superficial lymphatics; also an orange peel appearance sometimes spoken of as peau d'orange. The nipple should be examined for retraction or ulceration. You should also look for axillary gland involvement. This observation should be made both lying down and in an upright position. Palpation is next. This should always be done with the flat of the hand rather than picking up the breast between the fingers and thumb, the latter manner practically always giving the impression of lumps. Compare the feeling of the two breasts. A diffuse ropy thickening which is somewhat tender denotes a chronic mastitis and is not a surgical problem. Palpation should be done very carefully to determine the presence of lumps. Note whether there is one lump or more than one. Carcinoma starts as a single mass and multiplicity of lumps speaks rather strongly against this diagnosis. It is more likely to mean fibro-adenoma, which may be single or multiple in one or both breasts, or it may mean chronic cystic mastitis. The differential diagnosis between these two is made by transillumination. A single lump may be fibro-adenoma, carcinoma or a cyst. The fibro-adenoma has a hard rubbery consistency, is quite freely movable as a rule and is not tender. It is not fixed to the chest wall, nor does it cause retraction of the nipple or dimpling of the skin. It does not cause axillary gland involvement. Carcinoma, on the other hand, is much firmer, having a characteristic hardness. In early stages it may be freely movable but soon a little fixation to the breast may be noticed. In this early stage it cannot be differentiated from fibro-adenoma. The differential diagnosis is made by excision and biopsy. This operation should never be deferred. The earliest positive sign of carcinoma of the breast is likely to be a little fixation to the skin. This is detected by making pressure on the mass and noting whether the skin is drawn with it. In the early stage axillary glands are very likely not to be enlarged.

A cyst feels more like a fibro-adenoma. It is very hard to distinguish between them by palpation. A little fluctuation may be felt, but if it is quite dense this cannot be determined. Also sometimes a fibro-adenoma is quite soft and feels like it fluctuates. The differential diagnosis is made by transillumination.

Any single, solid lump in the breast should have immediate biopsy to rule out carcinoma, as we should attempt to make the diagnosis in the early stage when a microscopic section is the only definite diagnostic procedure. The axillary glands should be very carefully palpated for any possible enlargement. Of course enlargement of axillary glands may be inflammatory or may be carcinoma. In case of carcinoma they are harder and in later stages are likely to be larger.

Transillumination is a newer and very important part of the physical examination. It has been used for a long time to differentiate hydrocele from a tumor of the testis, but it is only in recent years that Dr. Max Cutler of Chicago began using it for breast diagnosis. The examination is made in a dark room with the patient in an upright position. Place a rather strong light under the breast so it shines up through the breast tissue. By looking down on the breast tissue the glowing of the light can be seen through the breast tissue. Blood stops the light more than any other thing in this tissue and, therefore, the veins stand out very definitely. In the same way a hematoma following injury will look darker than a tumor. A hematoma is more likely to have a frayed border than a tumor as the blood oozes out into the tissue spaces. Bleeding in a duct may be indicated as a dark line leading up to the nipple and pressure over this area may cause a little blood to be discharged from the nipple. This will point to the diagnosis of duct papilloma or carcinoma. A solid tumor will appear darker than the surrounding breast tissues. In fact in one or two cases I have been able to definitely transilluminate a tumor which I have not been able to feel. A cyst containing a serous fluid, on the other hand, appears lighter than the surrounding breast tissue. A cyst, however, that contains milk, blood or cloudy exudate will appear dark. However, this type of cyst should always be operated. Therefore, transillumination helps us very distinctly in differentiating a cyst from a solid tumor, and also in locating bleedings into the duct, which condition also necessitates operation.

A little more recently x-ray has been used for diagnosis, using not much penetration. In this way, tumors are likely to show up and will give their location, shape and type of border. I personally have not had so much success in diagnosing cases by this means as by the others, but it may be due to lack of experience.

Now as we look over the history and physical examination, we find that a carcinoma is likely to develop as a single, solid lump which grows slowly and steadily. This growth will be found accidentally as it does not cause pain or tenderness. I wish to again emphasize that it is a single lump and multiplicity speaks against carcinoma. In this early stage this lump, which is opaque to transillumination, cannot be differentiated from fibro-adenoma. The age of the patient will give some guidance as fibro-adenoma is more likely to occur in younger people, forty and under, while carcinoma is more likely to be between the ages of forty and seventy. However, the age cannot be taken as a diagnostic fact because of the many exceptions. The only way to make a definite diagnosis in this stage, and this always should be done, is to excise the mass and have a microscopic section made. In case this is not done, as the disease progresses we begin to notice a little fixation to the skin, first noticeable on pressure over the lump. Then the skin is drawn in a little over it, and the nipple often drawn inward and toward the lump. About this time some axillary glands may become palpable. A scirrhous carcinoma causes a drawing in of the breast in that area making it smaller than normal. A medullary carcinoma is likely to grow more rapidly and may make a bulging in that area. An adenocarcinoma is very likely as it enlarges to ulcerate and become infected. When this occurs it makes a foul smelling and bleeding surface, the patient suffers considerable absorption, and it results in cachexia, loss of weight, anemia, etc. As the disease progresses still farther it metastasizes through the lymphatics or blood stream to the lungs and mediastinum, to the supraclavicular glands, to the liver and abdomen, to the skin over the chest, to the brain, to the bones, etc. It may occasionally cause bilateral metastatic growth in the ovaries resembling a Krukenberg tumor.

The duration of life varies of course with the grade of the tumor and age of the individual. On the average, however, in untreated cases death occurs in about three years from the date of first symptom.

The first stage in the treatment of any early carcinoma of the breast is local excision of the tumor and study of the microscopic section. In later cases, when the diagnosis is absolutely definite, the surgeon in charge, if he has sufficient experience, may consider this preliminary step unnecessary. I feel that biopsy, if that is necessary, should be done by the surgeon who is to do the radical operation. I have had a few cases in which biopsy had been done elsewhere, carcinoma reported and the patient sent to me for radical mastectomy. At that time, the only thing left for a surgeon to do is to perform that operation. However, it is my experience that a fair number of border line cases are diagnosed carcinoma by pathologists. In these cases radical mastectomies could have been avoided.

Accredited means of treatment for carcinoma in general are surgery and radiation by means of x-ray or radium. There are several possibilities to discuss—first, surgery alone; second, radiation alone; third, a combination of surgery and radiation. The difficulty in determining results is that most statistics do not classify the various cases they report in regard to extent of growth, duration of symptoms and grade of malignancy. In other words, statistics in private practice where cases are seen earlier are likely to show much better results than those from large charity hospitals where most of the cases are advanced at the time first seen. Another difficulty is in the quality of work done. This is especially variable in radiation as the dosage and technique differ so greatly.

At the present time most authorities agree that any case not advanced beyond the breast and axillary glands should have a radical mastectomy. This consists of removal en masse of breast and axillary glands. The skin for an area about the tumor is removed with it. In doing this operation most surgeons remove the sternal and abdominal portions of the pectoralis major muscle and all of the pectoralis minor muscle. I am quite sure in doing this we get much better exposure of the axilla. I believe with rare exceptions the diagnosis of carcinoma of the breast, even though no axillary glands are palpated, should indicate a radical mastectomy. I realize that many cases may be cured by simple removal of the breast without the glands, but the percentage will be considerably higher if the radical operation is done. Surgeons frequently find axillary metastases when they did not expect them preoperatively.

Radiation will kill cacinoma if applied in large enough doses. Some types of carcinoma are much more radiosensitive than others. For example, squamous cell carcinoma in general is much more radiosensitive than adenocarcinoma. In the breast, to get large enough dosage to kill carcinoma, it would result in massive destruction of tissues involving severe burns and terrific pain. External radiation, using either x-ray or radium, will usually slow down the growth and improve it temporarily but as a permanent cure it has been found quite unsatisfactory. The other possibility is interstitial radiation, by which we mean implanting the radium and radon seeds into the tumor itself. The difficulty here is to get uniform dosage and to get outlying local areas of metastases. We must still consider this work in the experimental stage. At the present time most authorities consider surgery better than radiation alone for carcinoma of the breast.

We come into our greatest difficulties in discussing combined surgery and radiation. Should we use preoperative radiation; should we use radiation only postoperatively; or should we use radiation both before and after operation? In relation to any of the above questions, would we use combined methods in all cases or just certain types of cases? There is no use using radiation, as is often done, in grossly inadequate doses. Either use enough to accomplish something or do not use it at all. The pendulum seems to be swinging a little more in favor of preoperative radiation usually using the x-ray. If this is done, it should be given over a period of a few days, and using several portals of entry so as to get a large dose in the primary growth and axillary glands without burning the skin. In doing this, the glands should always be treated, even though no enlargement is found. In case radiation is used preoperatively, the operation should not be done for one to two months. Some are opposed to waiting this long for fear the malignancy will spread. If radiation were that ineffective, it should not be used. Postoperative radiation, when employed, should be delayed from two to four weeks after the mastectomy to let the wound heal. There is a great deal of discussion on these points, some advising preoperative radiation, other only postoperative, other both types, others relying on surgery alone, and still others using radiation only.

We have not yet sufficient data to definitely answer these questions. At the present time the concensus of opinion is that surgery should be used for carcinoma of the breast. Opinion is greatly divided on the question of pre and postoperative radiation but is getting more and more to favor preoperative radiation. I, personally, have not a great deal of confidence in radiation, in the doses now employed, curing carcinoma of the breast. However, it can greatly retard it and for that reason may be advisable.

My policy at the present time, in cases in hich the diagnosis is uncertain, is to do a biop- y, making a frozen section and in case it is ound to be a carcinoma, doing a radical oper- tion at that time. All but the earliest of these ases are followed by careful postoperative radi- tion as soon as the wound is well healed. On he other hand, in more advanced cases where the liagnosis is quite certain without a biopsy, I refer preoperative radiation and performing the adical mastectomy four to eight weeks later. am not very enthusiastic about using postoperative radiation in these cases but realize there are two sides to this question.

In conclusion, may I emphasize that every single, solid, painless lump in the breast at any age should be considered cancer until ruled out by microscopic section. This should be done immediately. The diagnosis of carcinoma should mean radical mastectomy, including resection of the axillary glands. Radiation in breast carcinoma is still somewhat in the experimental stage and, if used, should be as an adjunct to surgery rather than radiation alone.

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## STATISTICAL STUDY OF CARCINOMA AND SARCOMA*

**DAVID C. HILTON, M. D.,**
**Lincoln, Nebraska.**

***(Extracts from Study No. 7, Department of Surgery, Bryan Memorial Hospital, Lincoln, Nebraska)**

This study is principally of value to emphasize n a glaring way the needless wastage of human ife in this community by neglecting the *sine qui ion* of recovery — early diagnosis and proper reatment; and that a reasonable degree of suc- ess is attending the proper treatment of recover- ble cases. It also indicates that for greater ef- iciency a cancer study and consultative staff group is important. It further shows that the aity needs education. Too often efforts to reach he laity in a mass way, by the profession, mis- arry. The information period of cancer cam- aigns is followed by charlatan gleaners for a arvest on the anxious cancer suspects, and then ducation of the laity, having ceased, the public nind again submerges into ignorance and indif- erence. The proper education of the laity is to give them something concrete to do and to place a responsibility on them that is necessary and inder which they can carry on successfully to side step the ravages of cancer. This concrete hing to do is to report to a reliable physician for a health examination every six months after mid- lle life.

One can do no better on the laity phase of ancer education, in brief, than to quote Dr. Franklin Martin, "Health Examinations and Cancer," *The Scientific Monthly*, May, 1933:

"May I emphasize the fact that if every case of cancer could be diagnosed early and treated properly in its incipiency, the present annual death rate from cancer, now recorded as 150,000 in the United States and Canada, would be reduced by at least 33 per cent, or 50,000 per year. This early diagnosis and early treatment, may I again emphasize, can be insured only if the individual takes the precaution of submitting himself to an annual, or better, a semi-annual health audit, conducted by his own scientific family doctor.

"Other beneficial results will accrue from this dissemination of proof of the curability of cancer. The scientific medical profession will be spurred on to even greater efforts in its research into the cause of cancer, and in advocating early diagnosis; the discouraging psychosis that now exists in the minds of the public will be dispelled; a consciousness that cancer is curable will be established in the minds of all; fear will be displaced by a spirit of hopefulness; and every victim of cancer or suspected cancer will present himself for early diagnosis so that any and all diseases may be discovered in their incipiency, where they are amenable to treatment and cure.

"Remember that a great disinterested body, the American College of Surgeons, has announced authentic cures of cancer as follows:

| | |
|---|---|
| Pelvic organs | 1,948 |
| Breast | 3,634 |
| Bladder, kidney, and other genito-urin. organs | 439 |
| Colon and rectum | 116 |
| Thyroid | 165 |
| Larynx | 50 |
| Mouth | 867 |
| Stomach | 356 |
| Skin | 866 |
| Bone | 90 |
| Other classifications | 309 |
| Grand total of cancer cures five years and more | 8,840 |

"Remember, also, the slogan: "Cancer is curable," and remember, too, to present yourself to your scientific family doctor for an annual or semi-annual health audit."

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*Note: Dr. Hilton's work sheets, most valuable from the standpoint of hospital records and of cancer research, had to be mitted for want of space.

### TABULATION CARCINOMATA—BRYAN MEMORIAL HOSPITAL—JUNE, 1926-OCTOBER, 1932 SUMMARY OF GENERAL DATA AND COMMENTS

| | Undetermined Origin | Urinary Bladder | Prostate Gland | Cervix Uteri | Corpus Uteri | Ovary | Breast |
|---|---|---|---|---|---|---|---|
| Total Cases | 6 | 4 | 3 | 8(b) | 4(c) | 3 | 16(d) |
| Early | .. | .. | .. | 3— | 2 | .. | 7 |
| Late | 6 | 4 | 3 | 5+ | 2 | 3 | 10 |
| Recurrent | 1+ | .. | 1 | 1 | 2 | 1 | 6 |
| *Operable | .. | .. | .. | 5 | 2 | .. | 9 |
| Inoperable | 6 | 4 | 3 | 3 | 2 | 3 | 8 |
| Clin. Dia. Only | 4 | 1 | 2 | 5 | 1 | 2 | 4 |
| Biopsy | 1 | 2 | .. | 1 | 1 | 1 | 6 |
| Micro. Diag. | 1+ | 2 | 1 | 3 | 3 | 1 | 12 |
| Died of Ca. | 5 | 4 | 3 | 6 | 2 | 3 | 7 |
| Died, Other | .. | .. | .. | .. | .. | .. | .. |
| Autopsy | .. | 2 | .. | .. | .. | .. | 1 |
| Living W. Dis. | .. | .. | .. | .. | .. | .. | .. |
| Liv. and Well 1 Yr. | .. | .. | .. | .. | 2 | .. | 1 |
| Liv. and Well 2 Yr. | .. | .. | .. | .. | .. | .. | 4 |
| Liv. and Well 3 Yr. | .. | .. | .. | .. | .. | .. | 2 |
| Liv. and Well 4 Yr. | 1(a) | .. | .. | 1 | .. | .. | .. |
| Liv. and Well 5 Yr. | .. | .. | .. | 1 | .. | .. | .. |
| Fol. Up Incom. | 1 | .. | .. | 1 | .. | .. | .. |
| Age 30 or Less | .. | .. | .. | .. | .. | .. | 1 |
| Age 30 to 40 | .. | .. | .. | .. | .. | .. | 1 |
| Age 40 to 50 | .. | .. | .. | 1 | .. | .. | 5 |
| Age 50 to 60 | 2 | 1 | .. | 2 | 1 | .. | 4 |
| Age 60 or More | 4 | 3 | 3 | 5 | 3 | 3 | 6 |
| Male | 1 | 3 | 3 | .. | .. | .. | .. |
| Female | 5 | 1 | .. | 8 | 4 | 3 | 16 |
| Race, White | 6 | 4 | 3 | 8 | 4 | 3 | 16 |

*Operable with view to recovery from the disease.

Note 1: Tabulation of data on the following items of common inquiry in all carcinoma cases were omitted because there was so much lack of uniformity in the records as to make tables of no practical value: 1, family history of malignancy; 2. injury; 3. mechanical irritation; 4. infectious diseases; 5. Wassermann reaction; 6, concurrent diseases; 7, intercurrent diseases; 8. interval between first symptom and first consultation; 9. interval from diagnosis to radical treatment; 10. leading symptoms in order; 11. clinical pathology of growth; 12. clinical pathology of regional invasion; 13. clinical pathology of metastases; 14. misapplied treatments; 15. radiation in detail for a knowledge of its propriety and sufficiency.

Note 2: Remarks on annotated cases.

(a) Indefinite origin. An inoperable fixed pelvic mass. Treated by 100% depth dosage of x-ray. Clinical diagnosis only.

(b) Cervix uteri: 8 cases; 6 dead include 3 inoperable; 5 late cases and 1 early case. Two living and well without recurrence are early cases radically operated, but no pathological report on file.

(c) Corpus uteri: 4 cases; 2 dead include 2 late inoperable cases; 2 living and well without recurrence are early cases radically operated and both diagnoses confirmed by pathological reports on file.

(d) Breast: 16 cases; 7 dead include 6 late inoperable cases and 1 early case radically operated, which died 2 years after of carcinoma; 7 living and well without recurrence are early cases operated sufficiently radical, and all diagnoses are confirmed by pathological report save that in one a question of chronic mastitis arose; 2 cases are unaccounted for in the follow-up; 1 a late case radically operated and the other a late inoperable case.

### TABULATION CARCINOMATA—BRYAN MEMORIAL HOSPITAL—JUNE, 1926-OCTOBER, 1932 SUMMARY OF GENERAL DATA AND COMMENTS

| | Face | Mouth | Thyroid Gland | Lung | Gall-bladder | Pancreas | Oesophagus | Kidney |
|---|---|---|---|---|---|---|---|---|
| Total Cases | 1 | 6(e) | 3(f) | 2 | 5 | 9 | 2(g) | 1 |
| Early | .. | .. | .. | .. | .. | .. | .. | .. |
| Late | 1 | 6 | 3 | 2 | 5 | 9 | 2 | 1 |
| Recurrent | 1 | 1 | .. | . | .. | .. | .. | .. |
| Operable | .. | 3 | 1 | . | .. | .. | .. | 1 |
| Inoperable | 1 | 3 | 2 | 2 | 5 | 9 | 2 | .. |
| Clin. Dia. Only | 1 | 5 | 1 | 2 | 2 | 8 | 2 | .. |
| Biopsy | .. | .. | .. | .. | 1 | 1 | .. | .. |
| Micro. Diag. | .. | 1 | 2 | .. | 3 | 1 | .. | 1 |
| Died of Ca. | 1 | 5 | 2 | 2 | 5 | 9 | 1 | 1 |
| Died, Other | .. | .. | .. | .. | .. | .. | .. | .. |
| Autopsy | .. | 1 | 1 | .. | 2 | 1 | .. | .. |
| Liv. W. Dis. | .. | .. | 1 | .. | .. | .. | .. | .. |
| Liv. and Well 1 Yr. | .. | 1 | .. | . | .. | .. | 1 | .. |
| Liv. and Well 2 Yr. | .. | .. | .. | .. | .. | .. | .. | .. |
| Liv. and Well 3 Yr. | .. | .. | .. | .. | .. | .. | .. | .. |
| Liv. and Well 4 Yr. | .. | .. | .. | .. | .. | .. | .. | .. |
| Liv. and Well 5 Yr. | .. | .. | .. | .. | .. | .. | .. | .. |
| Fol. Up. Incom. | .. | .. | .. | .. | .. | 1 | .. | .. |
| Age 30 or Less | .. | .. | .. | .. | .. | .. | .. | .. |
| Age 30 to 40 | .. | .. | .. | .. | .. | .. | .. | .. |
| Age 40 to 50 | .. | 1 | .. | .. | .. | .. | .. | .. |
| Age 50 to 60 | .. | .. | .. | 1 | 1 | 2 | 1 | .. |
| Age 60 or More | 1 | 5 | 3 | 1 | 4 | 7 | 1 | .. |
| Male | 1 | 6 | 3 | 2 | 2 | 5 | 1 | 1 |
| Female | .. | .. | .. | .. | 3 | 4 | 1 | .. |
| Race, White | 1 | 6 | 3 | 2 | 5 | 9 | 2 | 1 |

(e) Mouth: 6 cases; 5 dead are late cases, 4 not operated, and 1 radically operated and treated with radium died 1 year after carcinoma; 1 case with a dime sized, operable lesion of the mouth, was not operated but treated with radium and is living and well without recurrence after 1 year. There is no pathological diagnosis on this case in file.

(f) Thyroid: 3 cases; 2 dead, inoperable; 1 living with carcinoma after 1 year was discovered to have malignancy after lobectomy, in the pathological report.

(g) Oesophagus: 2 cases; 1 dead, 1 living and well is undoubtedly accounted for in this instance by a mistake in diagnosis.

### TABULATION CARCINOMATA—BRYAN MEMORIAL HOSPITAL—JUNE, 1926-OCTOBER, 1929 SUMMARY OF GENERAL DATA AND COMMENTS

| | Testis | Stomach | Colon | Rectum |
|---|---|---|---|---|
| Total Cases | 1 | 15(h) | 11(i) | 9(k) |
| Early | .. | .. | 1 | 1(?) |
| Late | 1 | 15 | 10 | 8 |
| Recurrent | 1 | .. | 1 | .. |
| Operable | .. | 2(?) | 7(?) | 5(?) |
| Inoperable | 1 | 13 | 4 | 4 |
| Clin. Diag. Only | 1 | 13 | 8 | 8 |
| Biopsy | .. | 2 | 4 | .. |
| Micro. Diag. | .. | 2 | 3 | 1 |
| Died With Ca. | 1 | 10(+?) | 7 | 3(+?) |
| Died, Other | .. | .. | .. | .. |
| Autopsy | .. | .. | .. | .. |
| Living W. Dis. | .. | (?) | .. | .. |
| Liv. and Well 1 Yr. | .. | .. | 1 | .. |
| Liv. and Well 2 Yr. | .. | .. | .. | .. |
| Liv. and Well 3 Yr. | .. | .. | .. | .. |
| Liv. and Well 4 Yr. | .. | .. | 1 | 2 |
| Liv. and Well 5 Yr. | .. | .. | 1 | 1 |
| Fol. Up. Incom. | .. | 5 | 1 | 3 |
| Age 30 or Less | .. | .. | 1 | .. |
| Age 30 to 40 | 1 | 1 | .. | .. |
| Age 40 to 50 | .. | 1 | 5 | 1 |
| Age 50 to 60 | .. | 5 | 2 | .. |
| Age 60 or More | .. | 8 | 3 | 8 |
| Male | 1 | 6 | 3 | 5 |
| Female | .. | 9 | 8 | 4 |
| Race, White | 1 | 15 | 11 | 9 |

(h) Stomach: 15 cases; 10 or more dead, all inoperable. Non known to be living; 5 unaccounted for in the follow-up. N clearly operable cases among all.

(i) Colon: 11 cases; 7 dead, all late and only 3 rated a operable; 3 living and well, of which 1 was early and 2 late and the diagnosis in all 3 confirmed by pathological report o file; 1 unaccounted for in the follow-up.

(k) Rectum: 9 cases; 3 or more dead, all inoperable; 3 livin and well without recurrence, all late but operable, and only on diagnosis of these confirmed by pathological report on file 3 cases unaccounted for in the follow-up.

### MORTALITY TABLES

| | |
|---|---|
| I. Early Cases | |
| 1. Living and well. | |
| 1 yr. | 3 |
| 2 yrs. | 4 |
| 3 yrs. | 2 |
| 4 yrs. | 1 |
| 5 yrs. | 1 |
| 6 yrs. | 1 |
| | 12 |
| 2. Living with diseases | 0 |
| 3. Dead | 2 |
| 4. Unaccounted for | 0 |
| Total Early Cases | 14 |
| II. Late Cases | |
| 1. Living and well. | |
| 1 yr. | 2 |
| 2 yrs. | 0 |
| 3 yrs. | 0 |
| 4 yrs. | 4 |
| 6 yrs. | 1 |
| | 7* |
| 2. Living with disease | 1 |
| 3. Dead | 74 |
| 4. Unaccounted for | 13 |
| Total Late Cases | 95 |
| Total Carcinoma Cases | 109 |

*Success in these cases was achieved by the combined employment of radical surgery and radiotherapy and in two cases apparently by employment of radiotherapy without surgery.

### COMMENTS ON SPECIAL DATA REQUIREMENTS

Records of malignancies are most difficult to make as there is a special inquiry and a unique examination to be made according to the primary origin of the growth, and a variety of clinical manifestations for each tissue or organ primarily involved which, in cases other than local, extends to regional characteristics of growth, and general characteristics of metastasis.

To illustrate, the following lists of special inquiries bear on malignancy of tissues or organs named:

Kidney—Hematuria, pain in kidney region, pain elsewhere, loss of weight and strength, frequency, tumor, albumin or sediment in urine, n.p.n., cystoscopic view of bladder, ureteral catheterization, appearance time of dye from right and left ureteral orifice, pyelogram, x-ray of bones, x-ray of chest.

Oesophagus—Syphilis, teeth and gums, tobacco or alcohol, trauma (e, etc.), foods (hot, etc.), bolting, indigestion, dysphagia (water, liquids, soft foods), pain, expectoration, hoarseness, dyspnoea, lymph-nodes (cervical, supraclavicular), epigastric mass, x-ray, oesophagoscopy, biopsy.

Lung—Syphilis, tuberculosis, acute respiratory infections, nasal sinus infections, pneumonia, influenza, a chronic cough, pneumonoconiosis, bronchiolectasis, pain localization, cough, hemoptysis, expectoration, loss of weight, arthritis, dyspnoea, lobar localization, bronchial or tracheal obstruction, lymph-nodes (supraclavicular), dilated veins, osteo-arthropathy, sympathetic nerve symptoms, x-ray, bronchoscopy, lipiodal, sputum.

The records on malignancies are among the poorest on file in this hospital. To be of great value they require more systematic and detailed preparation than most other records, and are harder to compile. We have to deal with a common multiform fatal disease of unknown etiology, and every case should be recorded in the spirit of adding a mite to the solution of the cancer problem.

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## IMPROVED TEST FOR OCCULT BLOOD, ESPECIALLY IN THE URINE

In the course of a search for a new hemoglobin color standard, Willard J. Stone and George T. Burke, Pasadena, Calif. (*Journal A. M. A.*, May 12, 1934), found orthotolidine useful in the detection of minute quantities of blood in urinary sediments. The continued presence of red blood cells in urinary sediments has important clinical significance in that it may attract attention to glomerular inflammatory changes, which are frequently overlooked in the absence of albuminuria or other gross evidences of disturbance. They have found frequently that red cells were excreted more or less constantly in patients with evident foci of infection. They use a 1 per cent solution of orthotolidine in chemically pure methyl alcohol and one part of glacial acetic acid and two parts of commercial hydrogen dioxide. In performing the test 15 cc. of urine is centrifugated at about 1,500 revolutions per minute for five minutes. The supernatant fluid is poured off. A portion of the sediment is prepared for microscopic examination. To the remaining sediment two drops of the orthotolidine solution is added plus two or three drops of the acid-dioxide solution. In the presence of blood cells aggregating 100 per cubic millimeter of sediment (approximately 1,350 per cubic centimeter of urine) a greenish blue color develops lasting about one minute. In the presence of from 300 to 500 red cells per cubic millimeter of sediment (approximately 4,000 to 6,500 cells per cubic centimeter of urine) a deeper blue color develops lasting about one minute. In the presence of larger numbers of red cells, aggregating 1,000 per cubic millimeter of sediment (approximately 13,000 per cubic centimeter of urine) as in hemorrhagic Bright's disease (glomerulonephritis) a deep blue color develops lasting two minutes or longer.

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## *ANNUAL MEETING*
## *OMAHA*
## *MAY 14, 15, 16*

## *CALL FOR DUES*

*The annual dues to the Nebraska State Medical Association are now delinquent. Send $5.00 plus your county society dues to your county society secretary and be placed in good standing.*

*Physicians whose dues are not now paid, are delinquent and delinquents are not entitled to either Medical Defense or the Journal. The Journal may reach them by courtesy, but Medical Defense will pass them by.*

## *CALL FOR PAPERS*

*If you wish to read a paper before the next annual meeting, please send your name and title of paper to Dr. R. B. Adams, Secretary, Center McKinley Bldg., Lincoln, Nebr.*

*A typewritten paper of six pages, double spaced, on ordinary letter head paper will take 20 minutes to read. By this rule you may gauge your paper to be read at the next annual meeting.*

## A VARIED PROGRAM PROMISED FOR ANNUAL MEETING

What do the doctors of Nebraska want to hear and see and do at the annual meeting of the State Association? How can the attendance at the meeting be increased? What sort of program will be most satisfactory to the members? These and many other questions the members of your program committee asked themselves when considering their duties. It was agreed that everyone comes to the Annual Meeting expecting to have a good time and to learn of the advances of Medicine. It was felt that the more attractive the program could be made the better the attendance would be, and the committee went to work to produce a really attractive scientific program.

The key to a program is the guest speaker. By selecting distinguished men from various specialities to speak on a wide range of subjects we hope we have at least one address which will make the meeting worth while for every member. Not only will these distinguished guests be heard at their formal addresses, but round-table discussions are being arranged where they can be heard informally.

The papers by our own members are being carefully chosen to insure a wide range of subjects; to do this will mean that some papers which have been submitted cannot be used.

The program will be conducted in the best possible manner; loud speakers will be used so that everyone may hear, and the papers and discussions will be strictly limited to the alloted time.

We hope that when this meeting is over you will say that the scientific program was more than worth the sacrifice you have made to attend the meeting.

—Roy H. Whitham for
Program Committee.

## *CANCER NUMBER*

*In pursuance of our policy of publishing a Cancer Number at intervals we present herewith a number almost wholly devoted to cancer. It will be observed that the authorship of the articles is wholly Nebraskan. This is not the time nor place to laud the Nebraska profession, but it will be seen that the number is altogether creditable to the profession.*

*It is hoped that this effort will in a small measure assist in making the profession still more cancer conscious.*

*Several papers had to be omitted for want of space and others had to be abridged. Those cancer papers omitted from this number will be published in subsequent numbers of this Journal.*

## THE CANCER COMMITTEE

At the last annual meeting of the Nebraska State Medical Association the House of Delegates created a new committee to be known as the Cancer Committee of the Nebraska State Medical Association. Briefly this committee consists of five members selected from different parts of the state whose duty it is to correlate and disseminate available information concerning the prevention, the diagnosis and the treatment of malignancy.

The methods of procedure to accomplish the above ends have not been fully developed by the committee but a definite plan will soon be determined upon and measures undertaken to make available to the profession, principally through the columns of the *Nebraska State Medical Journal,* certain facts concerning malignant disease of every organ and system. Then, through the various county societies, some means will be evolved of reaching the general public with these facts.

To have such an undertaking effective requires cooperation of the various sectional units in the state after a uniform method of procedure has been decided upon.

Cancer is a serious but not always a hopeless condition, although many of the physicians of the state are inclined to take a discouraging attitude when confronted with a cancer case. This attitude is undoubtedly based on the fact that the average physician sees but a few cancers in his time and of the few he does see, one seldom gets well. His viewpoint is therefore naturally pessimistic.

On the other hand the individual who sees many cancers, sees a few get well and included in the few he can easily recall some individual who had young children to raise or something else important to live for. If the occasional case can with proper treatment be rescued from the scrap pile of the sick and restored to a useful life why not try for others? Anyone who sees many cancer cases, however, will tell you that he does not know just which case is going to result in such an occurrence. Some that look favorable at first die early and some which look very discouraging at first live a long time and may be eventually cured. At any rate, if any one of us was in the scrap heap we would be grateful to have someone pull us from the wreckage and restore us to our daily work. If such is the case and no one can deny that it is true, why should we not endeavor to pull everyone from the scrap pile and be satisfied with whatever salvage we get or at least partially satisfied; satisfied to the extent that we continue with our endeavors but dissatisfied to the extent that we make our efforts all the greater and more thorough until this type of disease is no longer held in mortal fear by laymen and physicians alike.

Anyone who is at all familiar with the cancer problem must admit that much progress has been made, particularly in the last ten years, and that the future is not as dark as it seemed to be a decade ago. Since much progress has been made in the last ten years it is the duty of the physicians in touch with this progress to get certain recently made known facts to the average practitioner of the state who is unable to keep in touch with this problem, as well as certain information which should be disseminated through public channels to the laymen. Briefly then the problem of the Cancer Committee is to attack through professional and lay channels the second greatest cause of death in the world today with a spirit of determination and optimism born of the meager results already obtained.

Since many of the former mysteries in medical practice have yielded to research and education why not cancer? Will not history repeat itself?

In the memory of many of us, the sufferer with diabetes, tuberculosis, prostatic disease and many other ailments have been rescued from the hopeless to the hopeful and it is not without reason to expect the cancer patient to enter the same hopeful class in the near future. At least the members of the Cancer Committee are aware of the seriousness and magnitude of their task but are sincere and determined in their efforts to approach the problem in such a way as to accomplish the greatest good for the greatest number.

—James F. Kelly, Omaha.

## CANCER SURVEY OF NEBRASKA

The Nebraska State Medical Association recently cooperated with the American Society for the Control of Cancer in making a cancer survey of the state. This was done primarily for the purpose of ascertaining the resources of the state in the control of cancer. In charge of this survey was Dr. Frank Leslie Rector. Field Representative of the American Society for the Control of Cancer.

Dr. Rector visited every medical center in the state. He reports that the officers of the State Medical Association cooperated with him in a most helpful way, as did the State Health Commissioner, the hospital executives, the medical staffs of hospitals and the physicians in the cities visited.

The report of the survey is most impressive and reflects the thoroughness with which it was carried out. It is to be hoped it may be published in full in the Journal. Let it suffice for our present purpose to present some of the outstanding revelations in this exhaustive report.

We learn that since 1927 cancer has occupied second place as a cause of death in the registration area of the United States; the deaths from heart disease being fully double that of cancer. The statement is made that: "Heart disease and cancer are two diseases showing marked increase in deaths and death rates throughout the United States." This is true in Nebraska where the records show a "steady and marked increase, much greater than the increase in population." From 1920-1930 the death rate of cancer in Nebraska was six times greater than the increase in population.

Only a very small percentage of cancer cases find their way into the hospitals of the state and many of these are in the advanced stages. Dr. Rector found nine hospitals in the state equipped with x-ray apparatus of 200,000 volts or more to adequately treat cancer cases. In some communities local physicians supplied the need in their offices. There is a total of 1,091 milligrams of radium in the state. To come up to the estimated needs of the state this amount of radium should be more than doubled. There are eleven hospitals in the state without facilities for tissue sectioning but four of this group refer their pathological material to a competent pathologist.

Social workers are found in three hospitals of the state and in a single institution research work is carried on. It was found that the State Department of Health is not engaged in any cancer program. This is indeed unfortunate in the light of the high cancer rate in the state. The vital statistics of the department are well kept but the meager budget does not permit of an extended program.

Under the caption: "Cancer Prevention and Control in Nebraska" Dr. Rector makes the following observations:

"At the time of this survey 75 counties in Nebraska, containing 52 per cent of the population and nearly 42 per cent of the physicians of the state, were without hospitals of 25 beds or more. In 1932, 44 per cent of the cancer deaths were reported from these counties, some of which have access to hospitals in larger population centers by automobile and rail transportation, but others are remotely situated in this regard. This situation limits development of special tumor services to a few localities where hospital facilities and personnel are available.

"With full appreciation of the financial situation throughout the state, it is felt that no commendation can be offered those hospitals and surgeons who summarily discard removed tissues without examination by a competent pathologist.

"It is believed that were concerted efforts made by the physician in charge of the case, the interne and pathologist when available, and hospital authorities, the number of autopsies in many Nebraska hospitals could be increased materially.

"In connection with an improved service for examination of tumor tissues and autopsy material, it would be well to establish a tumor registry in Nebraska.

"Diagnostic and treatment methods have been developed to the point where hospitals and physicians unable to supply adequate service should consider their obligations to the patient above their desire to continue his care, and should not subject themselves to criticism for not referring such patients to institutions where adequate service can be obtained.

"Use of radium in Nebraska should be restricted to physicians competent in this form of therapy. No criticism can be offered physicians with adequate training who prefer renting radium to owning it. However, the use of radium by physicians without adequate training and experience and who have opportunities to use it only at infrequent intervals cannot be commended.

"The Nebraska State Medical Association can make an important contribution to cancer control by better coordination of educational and therapeutic resources of the state for benefit alike of the physician and public. A continuing program of postgraduate medical instruction to be developed in cooperation with the medical schools and the cancer committee of the state association should be offered to the physicians of the state. Such a program might well be projected over a five year period, during which at least one cancer program annually would be given before each local medical society. One type of cancer, such as breast, uterus, skin, etc., might be featured for a year's work so at the end of five years the major forms of malignant disease would have been covered in a comprehensive postgraduate course. A cancer symposium and suitable exhibit would be desirable features at each annual state meeting.

short intensive course in tumor diagnosis and reatment might well be offered annually by the edical departments of Creighton University and he University of Nebraska.

"A program should be developed for the laity nd speakers offered to women's clubs, churches, olleges, and civic organizations.

"Development of a program of periodic re- cases to the newspapers of the state under au- hority of the State Medical Association might well be considered.

"Radio broadcasting offers another medium of ay health education utilized by some state medi- cal organizations."

—Palmer Findley, Omaha.

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## EDITORIAL PARAGRAPHS

Prenatal medication as a cause of deafness is being discussed in medical literature. Quinine, Salicylates and Alcohol are supposed to cause such deafness.

"Opportunity Seals" are to be offered for sale throughout Nebraska April 1st, the money to be used to aid the Hattie B. Monroe Home for Convalescent Children, Omaha.

Since Dr. and Mrs. A. F. Tyler, Omaha, made a trip to Europe, last summer, the doctor has spoken before about twenty organizations on "Some European Observations." These observations of physicians made in foreign countries are very interesting and valuable to lay and professional audiences.

Mottled enamel found in considerable areas in the Southwest and elsewhere in human beings, it appears now is also found in cattle and sheep. In certain regions in Africa a condition known as le darmous has been known to exist among man and animals for many years. It has now been determined that it is the same thing we call mottled enamel.

Dr. Franklin H. Martin, Chicago, Director-General and Founder of the American College of Surgeons, died suddenly at Phoenix, Ariz., March 7, 1935. It is understood that he was attending a regional meeting of the College of Surgeons. Dr. Martin was one of the really great men in American surgery and as an organizer and executive he was without a peer. His age was about seventy-seven years.

Coincident with the taking of an Omaha girl suffering from a diaphragmatic hernia to a Fall River surgeon for operation, to which a lot of newspaper publicity was given, an infant suffering from diaphragmatic hernia was operated on in her home town, Omaha, with equally good results. One cannot help noticing that in the one case the name of the Fall River surgeon was heralded all over the United States while in the case of the infant, the surgeon remains anonymous.

The recent births of twins forty miles apart is reported, one at home and one at a hospital forty miles away. Reminds the editor of a dream he once had: He dreamed he had attended a confinement in the Meridian Creek neighborhood. It was an average, uneventful case, as such events happen. About a week later he saw the father in town and asked how the mother and babe were getting on. The father said, "Oh very nicely, but about a half hour after you left wife gave birth to a second baby."

Phyllis Bottome's sensational psychological love story, "Private Worlds," is being filmed. In so doing the producer faces problems new to the indsutry. The book, from beginning to end, deals more with the complexes, inhibitions and repressions causing human behavior than the behavior itself. Up to now practically all films have dealt with behavior alone, or, in other words, with simple action, without delving too deeply into the cause of it.

The book reveals the cause behind all the actions of its characters, showing the "why" of love, amours, jealousy, triangles and madness.

To do this the film, according to Wanger, will have to be far more subtle than usual because of censorship difficulties, and far more simple than usual in order that the general public may grasp and understand the psychological principles involved.

Dr. Samuel M. Marcus, Los Angeles psychiatrist, will be the technical director.

Here is a feature of sickness insurance in Germany copied from *Medical News*: "Patients are visited in their homes by controlling officials who have to convince themselves that the patient is really ill and not doing any work. The sick insurance engages so-called confidential doctors who have to submit the patient to a final examination to see whether he is too ill to work. The results of such examinations are to a great extent startling. Here is one instance from among thousands: 2,008 patients were ordered to appear for a final examination. Eight hundred sixteen of them at once declared their complete recovery; 289 were found to be well by the confidential doctor. So nearly half of them were not ill at all.

"The confidential doctor is, so to say, the medical policeman, who not only controls the patients but also his fellow doctors who are treating them.

"The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance, is considered a cheat."

## OBITUARY

**John M. Birkner**, Lincoln, Nebr.; native of Germany; Missouri Medical College, 1886; also a graduate in pharmacy; practitioner at Sutton, Nebr., for thirteen years following his graduation; since which time he has been in practice in Lincoln; interested in military practice, he early enlisted in the Nebraska National Guard and rose from quartermaster sergeant to major and regimental surgeon, and as such served on the Mexican Border in 1916 and in 1917 and 1918 at Camp Cody, N. M.; after the World war he was made a lieutenant-colonel in the medical reserve corps; until recently a member Nebraska State Medical Association; died February 23, 1935, aged about seventy-eight years.

A widow, two daughters and two sons survive.

**C. Van Dyck Basten,** Kearney, Nebr.; Iowa University College of Homeopathic Medicine, 1883; physician at Kearney for upward of fifty years; died March 1, 1935, aged about seventy-six years.

**Edward S. Furay,** Omaha; Creighton Medical College, 1895; practitioner at O'Neill and Valentine previous to the World war; in Army Medical corps during the war, mostly on the Mexican Border; returning to civil life he engaged in practice in Omaha until ill health forced retirement about one and one-half years ago; died of a heart lesion March 6, 1935, aged about sixty-five years.

A widow, a daughter and three sons survive.

**John Westerhoff,** Carleton, Nebr.; Nebraska University College of Medicine, 1889; in practice at Carleton for thirty-two years; previous to his location at Carleton he was located at Swanton and Fairbury and spent one year in Europe; captain in the medical corps of the army during the World war, serving at Fort Sam Houston; served in the Nebraska legislature 1920-21; member, Nebraska State Medical Association; died February 25, 1935, aged about sixty-four years.

He was unmarried.

**William E. Packwood,** Riverton, Nebr.; native of Iowa; Loyola University College of Medicine, 1906; practitioner at Riverton since 1907; sometime president of the Franklin County Medical society; member, Nebraska State Medical Association; a man who took a keen interest in the civic affairs of his community, died March 5, 1935, in his sixtieth year.

A widow and daughter survive. Dr. Olin Packwood, Orleans, is a brother.

## THE SOCIETIES

Before the **Lancaster County Medical Society and the Lincoln District Dental Society,** March 4, Dr. E. C. Rosenow of Rochester, Minn., spoke on infections centralized in the nose, throat and teeth. These infections play a highly important part in the average individual's health.

Especially is this true when the infection is caused by streptococci, minutely small chain-like bacteria which remain attached when spreading infection in the human body. So active is the streptococcus that when once firmly entrenched in the system it may produce a multitude of nervous disorders, such as encephalitis—sleeping sickness—hiccoughs, insanity, and neuritis.

Just how the streptococci will react when localized at some point in the body depends entirely upon the individual.

The **Seward County Medical Society** held its annual meeting by a dinner and election of officers, at Seward, February 11.

Dr. J. G. Muir, Milford, was elected president; Dr H. J. Wertman, Milford, secretary-treasurer, and Dr J. E. Meisenbach, Staplehurst, delegate.

The **Sixth Councilor District Medical Society** was held at Stromsburg, March 4. Following a dinner the following program was carried out:

"Preventive Medicine in the Pre-School Child," R. E. Harry, M. D., York; "Preventive Medicine in the School Child," Frank D. Ryder, M. D., Grand Island; "Preventive Medicine and Public Health," P. H Bartholomew, M. D., Lincoln.

Thirty physicians were in attendance.

Sixty-four physicians and their ladies attended the dinner and meeting of the **Tri-county Medical Society of Hall, Howard and Merrick Counties,** February 28 at St. Francis Hospital, Grand Island.

Dr. M. C. Howard, Omaha, ably discussed "Duodenal Ulcers as Seen in 106 Cases." The meeting was one of the most instructive, as well as enjoyable, held for some time.

The **Dodge, Burt and Washington Counties Medical Society** met at the Hotel Pathfinder, Fremont, February 25, following a dinner attended by about forty physicians.

Dr. Chester Thompson, Omaha, and Drs. A. J. Merrick and H. H. Morrow were the speakers.

## HUMAN INTEREST TALES

Doniphan is said to be in need of a physician.

Dr. W. E. Nowers, Kenesaw, spent a couple o weeks with his family at Long Beach, Calif.

Dr. Jesse Hartman, Crete, underwent an operation at the Presbyterian hospital, Chicago, in February.

Dr. Harvey L. Casebeer, a York product, has located at Alva, Okla., in association with Dr. Clifford Traverse of the Alva Clinic.

The late Senator Gilbert M. Hitchcok left a bequest to the Visiting Nurses' association for a baby clinic and the same has been organized as the Hitchcock Baby Station.

Dr. W. F. Callfas, Omaha, has been made professor emeritus of the department of oto-laryngology of the University College of Medicine, after an assistantship of many years.

Dr. C. H. Arnold, Lincoln, was the victim of a theft of about $300 worth of surgical instruments from his car while the same was parked in front of Bryan Memorial hospital.

Dr. W. E. Mogan, a former Lindsay boy and at one time a practitioner at Petersburg, later moving to Denver, has been elected chief of staff at St. Anthony's hospital, Denver.

Dr. John A. Waggener, Humboldt, celebrated the fifty-ninth anniversary of his entry into practic February 24th. Practically all of his years of practice have been spent in the Humboldt community. Verily, here is the Dean of the Nebraska profession.

In Pennsylvania a policeman was bitten by a dog. This seems an effective way to put teeth in the law.—Norfolk Ledger-Dispatch.

*Annual Meeting, Fontenelle Hotel, Omaha, May 14, 15, 16*

# THE NEBRASKA STATE MEDICAL JOURNAL

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## CARCINOMA OF THE PROSTATE

EDWIN DAVIS, M. D.,
Omaha, Nebraska.

Carcinoma of the prostate is a subject of wide general interest. This is true primarily because this lesion forces itself upon the attention of every general practitioner by reason of its frequent occurrence. Dr. Hugh Young states that over twenty per cent of prostatic urinary obstructions are associated with prostatic carcinoma, and that a diagnosis of carcinoma of the prostate is made in 5% of the total admissions to the Brady Urological Institute, Johns Hopkins Hospital. While other observers might place these estimates somewhat lower, it is nevertheless obvious that a consideration of the diagnosis and treatment of this lesion is of practical importance.

Furthermore, there is another phase of this subject which tends to lend interest to the care and management of this lesion. It is generally recognized that the average case of prostatic carcinoma tends to be very slow-growing and often may extend over a long period of years. In fact, it may be safely stated that malignancy of the prostate tends to be more "benign" than malignancies involving other organs. This may seem to be a radical statement, and many individual exceptions may be cited, but it is nevertheless true that the existence of prostatic carcinoma is not incompatible with life, and a fair degree of health and comfort, over a period of years. This statement is based upon the assumption that mechanical urinary obstruction, if present, has been taken care of as outlined below.

Although a detailed consideration of the pathology of prostatic carcinoma would be here out of place, it is of interest to note that this lesion almost always has its origin in the posterior capsule, which in reality, is not the true fibrous capsule, but the layer or lamella of glandular tissue situated posterior to the lateral lobes. The diagnosis is, therefore, facilitated by the fact that the carcinoma lies directly under the examining finger in the rectum. Benign hypertrophy, on the other hand, involves the median and lateral lobes, but never the posterior lobe. Not infrequently, the two lesions co-exist in the same gland, in which case, it is usually the hypertrophied lobes which are responsible for the obstructive symptoms. As prostatic carcinoma grows it does not ulcerate into the urethra or bladder nor does it invade the lumen of the rectum. Its direction of extension is upward and outward, under the base of the bladder, and toward either seminal vesicle. Metastasis may take place very early or not at all. A curious predilection for osseous tissue, particularly for the bones of the pelvis and spine, is shown. In fact, it occasionally happens that the diagnosis of an unsuspected symptomless prostatic carcinoma may be based upon the accidental discovery of osseous metastases by a roentgenologist during the course of a routine examination. Metastases also develop in the retro-peritoneal lymph glands, probably more frequently than ordinarily supposed, because not so easily demonstrable as bony metastases.

In this brief presentation, however, we are not interested in theoretic considerations, but rather in a brief discussion of important points in connection with symptoms and diagnosis, as well as in a discussion of what may be done for these patients in a practical way with the purpose of providing relief.

### SYMPTOMS

*Obstructive.* As pointed out above, the urinary obstructive symptoms very frequently are due to co-existing hypertrophy of the two lateral lobes or the median lobe. For this reason, the symptoms of prostatic carcinoma often come to be identical with the symptoms of hypertrophy. Young(1) and Bumpus(2), in exhaustive statistical studies, agree that by far the most frequent initial symptom is urinary frequency, occurring in approximately 60% of cases. Increasing obstructive symptoms, characterized by varying degrees of nocturia, dysuria, straining, and urinary hesitancy, with a decrease in the size and force of the urinary stream, tending eventually to culminate in complete urinary retention, are familiar to every physician in general practice. These symptoms suggest the presence of residual urine, which may be confirmed by catheterization. Not infrequently, in case there is a very large residual urine, totalling several hundred cc., the outstanding symptom may be so-called paradoxical incontinence, characterized by a constant slight leakage, occurring particularly at night, and suggesting an incompetent sphincter, but due merely to an overflow from a chronically distended bladder.

*Uremic.* As is generally known, a chronic residual urine resulting in hydro-ureter and ascending infection, tends gradually to cause an impairment in renal function which may be measured by a decrease in phenolsulphonephthalein output and an increase in the blood nitrogen content. Insofar as symptoms are concerned, this development, in its early stages, produces anorexia and malaise; later, after the uremic condition progresses, mental sluggishness is noted, increasing through disorientation and delirium, finally to coma.

*Special.* It is estimated that nerve root pain occurs as an initial symptom in approximately 15% of cases. This symptom is due presumably to pressure upon nerve roots from lymph gland or bony metastases. The patient is likely to complain of indefinite aching pains which he locates in the region of the hips or the sacrum or the lower lumbar spine, and more particularly, down the backs of the thighs. In fact, persistent bilateral sciatic-like pain, occurring in a man in the cancer age, with or without urinary symptoms, is considered to be very suggestive of prostatic carcinoma. Contrary to ordinary opinion, hematuria is a symptom rather of hypertrophy than carcinoma. This is in keeping with the known fact that prostatic carcinoma rarely ulcerates into the urethra or bladder. In fact, hematuria, as an initial symptom in prostatic carcinoma, is almost unknown. Other suggestive symptoms are those tending to be associated with carcinoma in general, namely loss of weight, weakness, and anemia.

### DIAGNOSIS

*Rectal palpation.* This is by far the most important item in the examination. Ordinarily, the diagnosis may be established or disproved by this examination alone. There are comparatively few border-line cases. Prostatic carcinoma is ordinarily described as being of "stony" hardness, which is an excellent descriptive term as applied to the firm, unyielding rigidity which the palpating finger encounters in typical advanced cases. The surface of the prostate tends to be irregular and often nodular. This induration may be felt to extend upward and outward in the region of either seminal vesicle, producing the so-called butterfly-shaped, indurated mass. As contrasted with this, one may bear in mind the soft elastic consistency presented by the typical benign hypertrophy. Confusion may arise in the early case in which the induration is limited or localized and not sufficiently developed to present the typical stony hardness. It may be stated, however, that any small circumscribed area of unusual induration in the posterior prostatic capsule, in a man past middle age, should be viewed with suspicion. Finally, it is to be remembered that acute prostatitis, gonorrhoeal or non-specific, may present a degree of induration such as to cause a mistaken diagnosis. Under these circumstances, one may take warning from the history, and the acute or recent onset of symptoms, and from other features, particularly urethral discharge and pyuria, suggesting an inflammatory condition. It should be remembered, therefore, that a marked degree of induration in the prostate may exist by reason of acute inflammatory change.

*X-ray*. A plain x-ray film, covering the pelvic bones, may serve not only to confirm a suspected diagnosis, but also as an item in prognosis. As stated above, the discovery of osseous metastases occasionally serves as the original hint as to the existence of the prostatic lesion.

*Cystoscopy*. This method is not of a great deal of importance insofar as the diagnosis of prostatic carcinoma is concerned, in that the view within the bladder does not give characteristic findings. This examination, however, confirms or disproves the presence of residual urine. Furthermore, the introduction of the instrument may give a helpful hint in that one is thus often able to demonstrate a rigidity or contracture of the prostatic urethra, which is a suggestive feature insofar as urethral instrumentation is concerned. Cystoscopic examination also serves to determine whether or not there is a co-existing intravesical hypertrophy of the lateral or median prostatic lobes.

## TREATMENT

With rare exceptions, the treatment is wholly palliative and is directed toward symptomatic relief rather than with the hope of cure. The purpose is to provide that the patient may get along with a fair degree of comfort. Nevertheless, and in spite of the apparent hopelessness of the situation, the results of treatment are usually fairly satisfactory, and in some cases, quite gratifying. The treatment varies from nothing at all to complete radical excision, and includes interval catheterization, suprapubic drainage, partial perineal enucleation, and transurethral prostatic resection, in addition to radium and deep x-ray therapy, and measures directed toward the relief of nerve root pain. The better choice depends largely upon the degree of obstructive symptoms present, and also upon the age and general physical condition of the patient as well as upon his social status. The subject of treatment may be simplified by classifying cases as early and late, with or without obstructive symptoms and residual urine.

*Early Cases*. For obvious reasons this classification includes only a very small group in which the carcinoma consists merely of a small circumscribed nodule limited to the prostate itself and without evidence of extension or metastasis. For this group of cases, Young has devised a method of complete radical excision including perineal exposure, and removal of the entire prostate with its complete capsule, as well as the internal sphincter, the distal portion of the trigone and also the seminal vesicles, followed by suture of the bladder neck to the membranous urethra. The series of cases reported by Young following this radical operation demonstrates that a several year cure in a fair percentage of cases is possible by this method, and that a technic may be followed whereby urinary continence may be preserved. However, in that the opportunity for a sufficiently early diagnosis rarely presents itself, this operation may be performed only very occasionally.

*Late cases without obstructive symptoms or residual urine*. In this group, it is my opinion that it is often the case that no treatment at all is indicated. It is well known that these patients may often live over a period of years, in comparative comfort, and even without knowledge of the lesion. In fact, it is usually evident by rectal palpation at the time the diagnosis is made, that the carcinoma has already existed over a period of years. In the absence of mechanical obstructive symptoms, it is obvious that there is no indication for any surgical measure or for interval catheterization. This brings out a consideration of what is to be gained by radium or by deep x-ray therapy. Concerning the value of this form of treatment, there is room for a legitimate difference of opinion, and it therefore does not seem to be proper that an opinion should be arbitrarily expressed. Personally, being guided by the reports of other observers, I am inclined to be pessimistic. Bumpus' report, based upon a thousand cases, is rather discouraging, in that one is lead to believe that there is no material difference in the span of life between the treated and the untreated cases. Referring to the combined radium treatment through the urethra, rectum, and perineum, Bumpus states "The results of radium treatment compelled its abandonment." He adds, however, that the greatest field of usefulness of radium lies in those cases following prostatectomy where the pathological investigation of the excised specimen showed comparatively little involvement. Young has gone into great detail in giving combined treatments including radium through the urethra, rectum, and perineum, also the direct implantation of radium needles into the prostate through perineal and suprapubic surgical exposure. He has followed this treatment by deep x-ray therapy through the hips, sacrum, perineum, and abdomen, and concludes that "the ultimate results have not been satisfactory owing to the development of metastases and sometimes the recurrence of urinary obstruction. However, he states also that radium, with or without deep x-ray therapy, is of great value, particularly where operative treatment is contraindicated.

In summing up the contradictions and the differences of opinion in the various reports, one is left with the impression that neither radium nor deep x-ray therapy, nor the combination of the two, may be expected to be curative. Some degree of symptomatic relief or prolongation of life may be expected. On the whole, I am not inclined to lead the patient to expect too much. At the present stage of our knowledge, however, one should not be too arbitrary.

Many of these patients (with or without residual urine) suffer more or less, and many of them considerably, with so-called nerve root pains, referred to above. In these cases, the use of opiates often becomes necessary. Saltzstein$^{(3)}$ has reported a small series of cases, including other malignancies as well as those involving the prostate, in which he has obtained relief following the intra-spinal injection of absolute alcohol. At the present writing, I am not prepared to express an opinion as to the value of this method.

*Late cases with obstructive symptoms or residual urine.* It is in this group that the most may be accomplished, by way of palliative treatment and symptomatic relief, in that the chief problem has to do with mechanical obstruction. Measures which may be employed in an effort to do away with residual urine, include partial perineal enucleation, transurethral prostatic resection, suprapubic drainage, and interval catheterization.

Partial perineal enucleation, for advanced prostatic carcinoma is performed with a technique very similar to the technique ordinarily employed for benign prostatic hypertrophy. The essential difference is that the difficulty is increased by an adherent rectal wall and by the fact that the cleavage planes which facilitate the ordinary lobe enucleation are not so well demarkated. By this operation, no pretense of complete removal or excision of the carcinoma is made, nor does the thought of a cure enter in. The purpose of this procedure is merely the enucleation of the obstructing lobes in order to permit free urination. The satisfactory functional results following this partial enucleation, and the long period of time that these patients may live in comparative comfort, bear out the above statement that carcinoma of the prostate is relatively "benign." I have in my files, records of a number of patients who have lived over a period of years following this procedure. One of them, in particular, had the operation more than six years ago, and at this time, had an advanced prostatic carcinoma with urinary retention. The diagnosis was confirmed by section. This patient is still alive and well and in apparent excellent general condition. The average results following this procedure are very fair and the occasional result is amazingly good. There is one defect, however, in that the tendency toward unsatisfactory post-operative urinary control is distinctly greater following partial prostatic enucleation for carcinoma than following the same procedure for benign hypertrophy. This discrepancy has never been adequately explained. It would seem reasonable to suppose, however, that the carcinomatous infiltration around the membranous urethra may have caused the tissues in this region to be more or less rigid, so that the membranous urethra comes to resemble a pipe stem, rather than a soft collapsible tube, and thus preventing satisfactory function of the external sphincter. It is well known that in most cases of prostatectomy, whether suprapubic or perineal, the function of the internal sphincter had been destroyed by the chronic stretching which it has received as the result of the presence of the enlarged gland.

Transurethral prostatic resection, recently introduced, has come to be by far the best method of relieving urinary obstruction due to prostatic carcinoma. This method is applicable in most cases and offers very gratifying and satisfactory relief to these sufferers with only a comparatively short period of hospitalization. Granting that this relief is only palliative and perhaps only temporary, the great value of this procedure is not open to question. In fact, those who are inclined to be skeptical as to the field of usefulness of transurethral resection must acknowledge its value in prostatic carcinoma. For this reason, the application of partial perineal enucleation (described above) has come to be limited to those cases in which the tortuosity and the rigidity of the prostatic urethra are such as to prevent the introduction of the resectoscope, and to those cases in which the enlargement is so great that the open enucleation seems to be preferable. This latter group includes particularly those cases of prostatic carcinoma associated with large benign hypertrophy. Transurethral resection may, therefore, be considered to be the ideal procedure for relieving the suffering due to urinary obstruction secondary to prostatic carcinoma.

Permanent suprapubic cystostomy, which may easily be performed under local infiltration anesthesia, is applicable in that group of cases in which the physical condition is such as to contraindicate either the perineal enucleation or the transurethral resection, and also in those cases in which it is the patient's preference that no operation upon the prostate be performed. The suprapubic drainage tube does away with the straining and tenesmus ordinarily associated with prostatic obstruction and infection. These patients get along far more comfortably than one would suppose, provided that the bladder is irrigated frequently and the tube changed at intervals. There is comparatively little urinary leakage, after there has been sufficient scar tissue contracture to produce a tight fit around the tube. The wearing of a suprapubic drainage tube, in comparative comfort over a number of years, is not unusual.

Interval catheterization may be employed as a rather unsatisfactory palliative measure, in cases where any form of operation is contra-indicated by the general condition, or is opposed by the patient. This method which is hardly better than a make-shift and is the least satisfactory of the various palliative procedures, may nevertheless be of considerable help in doing away with the straining and urinary frequency incident to mechanical obstruction. It is, of course, true that in many cases, frequent interval catheterization is impossible, either because the patient is not capable or by reason of tortuosity or irregularity of the prostatic urethra.

### SUMMARY

Prostatic carcinoma is relatively "benign" in that it tends to be very slow-growing, and ordinarily does not produce symptoms other than those incident to urinary obstruction.

Provided that certain procedures are employed which are palliative rather than curative in purpose, the existence of prostatic carcinoma is not incompatible with life and a fair degree of health and comfort over a period of years.

Of these palliative procedures, the chief purpose of which is to do away with mechanical obstruction in the prostatic urethra, transurethral prostatic resection is by far the most important, and offers a method of relief to these sufferers, hitherto not available.

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# MEDICAL THOUGHT VS. MODERN SOCIOLOGICAL TRENDS*

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### INTRODUCTION

If the title of this address sounds imposing I assure you that the task of the discussion of such a complicated topic seems enormous. To include all phases of medical thought in their relationship to sociological trends is obviously beyond the scope of this paper. One could dwell profitably on the scientific developments in medicine incident to sociological trends in our times as well as that found in historical studies. The Roman wars and their influence on development of public health, the Greek arts and their contributions to the sciences of anatomy and chemistry, are no less important in our growth, than are the effects of our modified concepts on wound surgery or the recent modification of our psychiatric knowledge, brought about by the world war. The thinking physician cannot escape the evidence that medicine as an art and a science has ever kept pace, dynamic or static, with the trends of the world at large. It never was and apparently never can be an institution independent of its surrounding social and intellectual forces. Whether these forces be in forward or backward direction matters little. Their effects are always palpable. Medicine flourished in older countries when the populace engaged in constructive activities. It deteriorated along with all other institutions when civilization was plunged into an abyss of mysticism and fanaticism that characterized the Dark Ages. With the advent of the period of enlightenment and cultural re-awakening, the Renaissance, Medicine was also reborn, and after going through a stage of scientific infancy emerged again as a noble profession which only a noble heritage can beget, and an age of reasoning can maintain.

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*Read before the annual meeting of the Seventh Councilor District at Geneva, Nebraska, October 18, 1934.

Constant developments in the natural sciences, encouraged by a spirit of deductiveness, have left their marks on medicine in the form of valuable achievements in diagnosis and therapeutics. Our historical archives do not lack in incidents of over-cautiousness in accepting new thoughts, but the seriousness of our calling perhaps justifies this slow reaction-time. Our training and experiences teach us to be deliberate and equanimatous, even though a newly proposed concept may have the potentialities of ultimately modifying or even abandoning our present beliefs.

The point I wish to emphasize is that medicine is dependent on its surroundings for progress or retrogression. As the cultural and social trends go so does medicine. Willingly or unwillingly, for good or for evil, our calling is such that we are forced to keep in step with the spirit of the times. In my opinion, this state of affairs needs neither our endorsement nor our condemnation. It is a natural process, and shout as we may against it, from our mortgaged housetops, there is little we can do to change it. With cool heads and a united effort we may be able, as better-informed citizens, to modify the present tendency to socialization of everything that can be socialized, but as physicians, alas, our voices are too feeble and our votes too few to exert any strong influence that may divert the sociological and the political avalanche that is headed in our direction.

## THE PROBLEM AS IT AFFECTS MEDICINE AND THE SOCIAL WORKER

This evening, therefore, our discussion will concern itself with medical thought only from the economic angle, and in like manner the sociological trends will be considered from the point of view of the social worker who has of late entered into health activites. You are all familiar with the role that social work now plays in the scheme of our civilization. You are also aware of the various Foundation activites in the field of health. The Commonwealth Fund, the Twentieth Century Foundation and other organizations which have taken it upon their well-fed shoulders to fight the medical bills of the down-trodden middle man by a million dollar Committee on Costs of Medical Care, are all known to you. Probably only a few of you realize that recently the Milbank Fund through its very efficient director arrived at a plan which, if we would only avail ourselves of it, would afford every physician a minimum income of a handsome $7,500.00 per year!

A social-worker friend who discussed this plan with me said that he expected me to laugh at it. He pointed out that my predecessors scoffed at Pasteur's discovery of bacteria because they believed in the unproved theory of spontaneous generation; that they send Semmelwies to the nut-house when he proved that childbed fever was the result of infection, because the doctors hated to part with the silly idea of bad air. The doctors of today, it seemed to my friend, would rather starve in their stubbornness about patient-physician relationship than make a comfortable living, affording medical care on the insurance plan. He concluded that we are, at best, a peculiar lot.

That medical practice is unique and complicated cannot be denied. Our profession has centuries ago dedicated itself to service, and for centuries, too, we have prided ourselves in that we were able to carry out our functions satisfactorily to those under our care. In return we have enjoyed the happiness of our task and the respect which went with the title "doctor." The monetary phase of our calling was unimportant in comparison with the prestige which automatically went with it. We were neither rich nor poor. We were simply respected citizens of the community looked up to for advice and guidance on matters pertaining to the activities of the commonwealth. The rich man knew he could confide in the physician, the poor man knew the doctor as a friend.

All went along smoothly until the industrial revolution set in. Here is another illustration of how medicine unconsciously follows the trend of its surroundings. With the advent of the machine, specialization arose. Speed of production became the motto of every producer. No longer was one man required to produce a whole article of a given commodity, but only a part thereof. He soon became proficient in the particular part assigned to him, with the result that his workmanship excelled in quality and quantity. The doctor soon fell in line with this tendency. One began to pay special attention to the heart; another interested himself in kidney disturbances, a third in nose and throat, etc.

The sciences kept up their contributions until it was practically impossible for one person to be proficient in all medical branches. The laboratory continued its donations in the form of additional aids for diagnosis and treatment. Medicine became expensive. Some doctors began to be dissatisfied with meager incomes in exchange for long years of preparation and longer years of hard work. Fees gradually assumed importance in our practical minds, and justly so, since the public was now placing a higher premium on worldly possessions than on educational and cultural achievements. The doctor began to be judged by his external appearances rather than by his cultural background. Thus it was made plain to the doctor that if he is to be a successful physician he must be a good business man. He must not only charge for services, but in addition he must make every effort to collect his fees.

We must now turn to another problem that concerns us as practicing physicians, a problem that we must look squarely in the face and try to understand as impartially as we can,—the government's responsibilities for the health of its people. Most of you must by now realize that the boundary line between old-fashioned public health and old-fashioned individual health is growing thinner with every new discovery in bacteriology, as well as with every new concept of social and moral justice. Infectious diseases —malaria, yellow fever—control is an undisputed function of municipal, state, and Federal health service.

Protection of the child from exploitation by ignorant parents or greedy employers is recognized as a Federal function,—civilization is gauged by the attitude of a people toward its children. Protection of the workingman against injury while employed is a humanitarian duty of the state. The employee as well as the physician who cares for his injury must be safeguarded by insurance.

It is only to be expected that in the execution of these government functions, impositions on our practice will result, and the system will be criticized or condemned regardless of its virtues. "The Government is practicing medicine." "The Workmen's Compensation laws are a menace." "The City has no business immunizing children against diphtheria and smallpox." "The school nurses have no right to judge a school child's physical status," etc. How often we hear these complaints.

We come now to a consideration of social work and its relation to the problem of health. Most of us are inclined to view the social worker as a meddlesome intruder. Why, we ask, does he not stick to his sociological duties of help dispensing, finding employment for his wards, rehabilitating the down-and-outers? What does he want with health? The answer of course is obvious. Health is in no small way associated with relief. Family welfare agencies frequently encounter problems of poverty and general domestic unhappiness resulting from sickness, especially sickness of a chronic nature. Even in normal times, the files are loaded with case records where illness is the major cause of public dependency. Although the social worker's cock-suredness with regard to individual health administration may seem objectionable his interest in the problem is wholly justifiable. A sick person cannot be rehabilitated to the extent of self-support, nor can a debilitated bread-winner be expected to maintain his family by working for a living.

Furthermore, as the world war contributed to our knowledge of surgery and psycho-therapeutics, so also has the present economic chaos brought to light many new principles of social human relationships, which the sociologist is attempting to evaluate and put into action. On one side there is so much food that strenuous efforts are allegedly necessary to limit its production; on the other side are people starving for want of something to eat. Clothing factories are crumbling from disuse and millions of men and women go around dressed in rags; people willing to toil in order to be able to buy necessities cannot find a buyer for their labor. Hundreds of thousands of self-respecting citizens are harassed by debts, yet the banks are so overloaded with unproductive money that they refuse to accept new deposits. In our own field many physicians are tired of inactivity and weary of indebtedness yet there are thousands of patients who need our services but are reluctant to consult us—they cannot afford it. This last statement is made advisedly. I am aware of the belief current in the profession that no self-respecting person in any community dies from want of medical care. Yet where is there a practicing physician who is not told almost daily that self-medication was tried, in many instances successfully, "because we thought we would save a fee."

In this connection it may not be amiss to momentarily consider the problem of over-supply of physicians. There is no doubt but at the present rate of physician-use there is a disproportion of doctors to population. However, an estimate by one economist at least (Stuart Chase Survey Graphic for May, 1934) shows that were every person in the United States to receive adequate medical care, there would be a definite shortage of medical men, and it would take the medical colleges of this country at least ten years at the present rate of physician turn-out to supply the necessary number. Take this statement for what it is worth, but consider from your own practice how many of your patients obtain full value of your present facilities: the monthly examination of the infant, the three yearly examinations of the pre-school child, vaccination and immunization, two yearly examinations of the school child, and the yearly periodic examination of the adult, under your care! To this add adequate medical care in time of illness, the care by the physician of minor ailments instead of self-medication with counter prescriptions.

You say that this is medical utopia and there is no utopia on earth. Perhaps you are correct. Yet this is exactly what we have taught the people to understand by adequate medical care. Furthermore this is the type of service rendered to the dispensary patient on a no-fee basis, and the wealthy class on a pay basis. The middle class relies on the radio and printed page for treatment of minor ailments, and the doctor is called only when these are aggravated or when some serious illness strikes the family. As to how many of these families avail themselves of the preventative measures I shall let you draw your own conclusion.

Some of my optimistic colleagues often ask "How many patients do you know who are dissatisfied with the present methods of medical care?" Very few, I admit. "Is it not true that most of the dissatisfaction comes from dissatisfied patients, or from bolshevistic social workers?" they ask again. Perhaps. My contention, however, remains that the public as a whole is very seldom responsible for any radical changes in our institutions. There are always a handful of leaders, some sincere, others selfish promoters, who, by constant agitation ultimately convince the people at large of their needs. I am not an alarmist, nor am I in the least pessimistic with regard to our future. I believe that our conservativeness will serve us well, and that whatever changes will result will turn out for our good, since whatever is to our advantage ultimately is also to the advantage of the public.

I must touch upon one other feature which affects our practice, and of which we must become cognizant as an indication of public interest in medical care. The United States Chamber of Commerce for the past several years has been conducting a sort of contest on community health. Every year each local Chamber of Commerce is required to answer a questionaire pertaining to different phases of health activities of each community. There is much food for thought in these questions. "How many children were immunized to diphtheria in the current year? How many children were examined for defects? How many periodic examinations were made? etc. etc." You would be surprised with what interest each local chamber awaits its rating. You would be similarly surprised with what seriousness each local organization accepts these returns. There is a definitely growing interest of the public itself in matters of health and adequate medical care, that to my mind, can no longer be ignored by us.

### THE GOVERNMENT STEPS IN

At this time no discussion on medical practice can be considered worthwhile without touching on the Federal Emergency Relief system for medical care. I realize that my position is precarious in this section of the state, but I trust that your patience will not be exhausted by my remarks. They are merely an expression of my personal interpretation and represent no effort to dissuade you from your present beliefs.

Aside from the immediate functions which this system purports to carry out it may be looked at as a sign of the times, again corroborating my thesis that medicine always follows the trends of existing thought and activity, regardless of whether we sanction the system or condemn it. The FERA originally undertook to supply, in a scanty measure, relief to the unemployed in the form of food, fuel, rent and clothing. Please remember to distinguish between the unemployed and the pauper class. The latter group remained the ward of the county. For the previous group no provision was made for medical care. One must also bear in mind that in the urban communities the present unemployed, in normal times made up a large percentage of the doctor's income, which with hard times was practically eliminated. Many of these individuals and families contracted large medical bills over a protracted period of unemployment and the huge majority had to seek free medical service in the clinics or from the county physicians. The load became too heavy for all concerned.

The doctors, too, began complaining about the burden of free service. I ask you now what was there to be done? These people were turned away from the clinics, the county physicians could not supply the services to all who applied, the physicians at large were asking why the grocer and the butcher and the clothier were paid and not they. Is not health a necessary commodity for which provision should be made as it is for other commodities of life?

Whereupon the FERA, after many sessions with state association representatives, agreed to make medical care allowance on a schedule of fees provided by the state association, with certain restrictions which the authorities thought necessary for the efficiency of the program. The fees, of course, are small in comparison with the regular charges, and I am ready, for the sake of argument, to admit the danger of the minimum fee becoming, in time, the maximum. Had the physicians rejected the plan there was only one way in which the unemployed could be furnished medical service, and that is by the federal government hiring full-time physicians to take care of the 10,000 people in Omaha. This is the worst form of state medicine conceivable, because sooner or later our present patients would begin to wonder why they, too, could not obtain free medical care. Free health service would be demanded, as is at present the case with public immunizations.

Under the system adopted the free choice of physician makes it possible for the doctor to retain his families. Even half the fee collected, I have learned, by bitter experience, is more profitable than the full charge on the books. And need I tell you here that if every physician collected fully one-half of his regular fees for the charity work he is doing today there would be few hungry physicians willing to accept $150.00 a month on full-time government jobs?

I have attempted this evening to point out to you criteria which indicate a sociological trend toward a better understanding between the different economic groups. An effort was made to bring to you the realization that medicine invariably follows the trends of the times. We are living in a rapidly changing world and, to me at least, it seems improbable that we will escape some sort of modification in the nature of our practice. I tried to illustrate the various ways in which health has become of deep interest to the politician, the social worker and the civic leader,—no negligible forces in our scheme of life. They must be recognized and reckoned with.

The statements made here are not theoretical. They are facts that one can observe on every turn. What, then, shall be our attitude to this trend? Shall we resume our policy of dignified silence because we feel that our cause is just and therefore we are invulnerable to any attempt at forced change? Shall we continue in our exhortation to the sociologist "Let us alone. You know nothing of health or its administration or of medical care. Go about your statistics and case work. We have taken care of the health situation for centuries, we have nothing to apologize for, we will continue on our job long after you have gone out of existence! We have tradition behind us, you have no experience to go by. Your field is new, your theories not yet ripe for utilization. We shall handle our patients on a basis that is satisfactory to both. There is a relationship of trust and confidence between us which cannot be violated. It is too sacred to be fooled with"? Or shall we assume the attitude that medicine has always profited from the contributions in other fields and perhaps these studies in sociology and economics have something to offer which can be applied in our practice?

## IS THERE A SOLUTION TO THESE PERPLEXITIES?

I present these questions for your consideration. I confess that both age and professional experience do not warrant my giving advice on which course to follow. The policy of continued silence does not appeal to me as practical with threatening changes all around us. Nor do I trust the sociologist and the economist, because while medicine has put into practice scientific principles and discoveries I am not yet convinced that the social sciences are strictly based on immutable laws as are the natural sciences. Short as my experience was on the supply versus demand of certain stock commodities in 1929, I have ample reason to look with suspicion on the gentlemen who claim scientific precision for this branch of knowledge.

Looking a little deeper into the situation it would seem superfluous to stop and bargain about what course to pursue. No one knows what social changes are in store. Of one fact, however, we may be certain, namely, that a solid profession with a united effort, standing as we do for principles of public good, can be overwhelmed neither by impractical theorists nor by dictatorial politicians. The importance of well-organized County and State societies becomes obvious. We may have our differences and our personal likes and dislikes, absolute necessities for an active Society providing these attributes are not carried to extremes, but on the matter of practical policy we must stand united.

In unison, too, we must take a more active interest in the civic and political affairs of our respective communities. We must in self, as well as in public defense, raise our voices and multiply our votes in order that those whom we are trying to protect may understand the principles which underly our service. Civic and political activities, however, are only auxiliary methods upon which we may rely. Our most effective weapon to resist intrusion is education, public and individual.

But let us be cognizant of our problems, and not resist blindly. Let us ever remember that as long as there are millions of people who are not receiving adequate medical service, and as long as there are thousands of physicians who are overburdened with debts because their services are not available to those who wish these services, we cannot in honesty defy the civic leader, the politician and the social worker with the statement that we have nothing for which to apologize. The best that we can do is elaborate a plan whereby the fruit of our knowledge may be made available to all people living in our land.

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# LIVER FUNCTION TESTING*

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In order to test the function of an organ, it is first necessary to understand what its function is. The functions of the liver, as far as is known, are as follows:

1. The intermediary stages in the metabolism of proteins and fats occur in the liver. The details of the mechanism are not understood.

2. Various toxic and noxious substances absorbed in the portal area are detoxified in the liver. Little is known about specific details.

3. The metabolism of carbohydrates is understood better than any of the other functions, and consists of the following:

a. The conversion of monosaccharides (dextrose, levulose, galactose) brought to the liver cells by the blood, into glycogen, a polysaccharide closely related to starch.

b. The temporary storage of glycogen as such.

c. The reconversion of glycogen into dextrose by liver enzymes as need arises for sugar throughout the body.

4. The formation of urea from amino-acids and ammonium carbonate is also a well understood function.

5. The excretion of bile pigments and bile salts.

It is probable that there are other functions about which nothing is as yet known.

As the liver consists of only one kind of parenchymatous cell, it is probable that each cell performs all of the functions; there are no separate groups of cells for separate functions. The possible exception to this is, that there is evidence to indicate that the excretion of bile occurs in the Kupfer cells. The question arises whether, since each cell performs all the functions, an impaired test on one function implies corresponding impairment of the other functions. Since all of these functions are fundamentally necessary to life and depend for their effectiveness on the vital intactness of the cell, it is probable that there is an approximate and general correlation of impairment of the various functions along with liver cell injury. Again, exception may be taken and a distinction drawn between bile excretion on the one hand, and the rest of the functions on the other. A survey of the literature indicates that most clinicians are using as many tests as are practicably available for the purpose of evaluating the individual clinical case.

On theoretical grounds it is conceivable that a toxic process may injure the liver epithelium and result in impaired function, leaving the Kupfer cells intact; suggesting that it is necessary to distinguish clearly in our reasoning between the two sets of function tests. On the other hand a cirrhosis or a malignancy may make a clean sweep of all the functions. To make for specificity in the clinical conception of what is going on in the liver, representative tests from each of the groups ought to be carried out.

An examination of the literature indicates that the following tests have been used sufficiently by clinicians and pathologists to merit attention:

1. The detoxifying action of the liver may be studied by means of three groups of tests:

a. The excretion of dyes; which is probably classifiable as a detoxifying function:

i. The bromsulphalein test is most widely used and accepted. As it has been shown that 12% of the liver must be removed in experimental animals before the test indicates impairment, it must be kept in mind that a negative test does not indicate the absence of pathology. It is, however, well accepted by most clinicians that a definitely abnormal degree of dye retention indicates that the safety margin of liver injury has been exceeded. What proportion of the liver tissue this signifies in the human is not known. The 5 mgm per kilo of body weight dose is more sensitive to liver damage than the 2 mgm dose, because the larger dose gives a better test load. There is one unexplained problem in connection with this test, and that is the retention of more than 100% of the dye in some cases. The total blood volume may play a part here.

ii. Tetrachlorphenolphthalein and tetraiodophenolphthalein play a part analogous to that of bromsulphalein. As they are radio-opaque, their excretion may be studied roentgenologically.

iii. Rose-bengal has been reported with enthusiasm by some writers as a useful liver dye; but has not been widely adopted.

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*Read at a meeting of the Pathology Club, Lincoln, Nebr., January 24, 1935.

b. The oxidation of cincophen: a test-dose of cincophen is administered, and the proportion of it that has been oxidized by the liver cells is estimated by determining the oxy-cincophen in the urine. There is still a question as to whether or not cincophen is itself injurious to the liver epithelium, or whether the supposed bad results following its therapeutic use were due to its use on patients with pathological livers. This question and the difficulty of obtaining some of the chemicals necessary in the test have confined its use to the larger clinical centers.

c. The nitrogen metabolism of the liver must be considered as a detoxifying action, because the ammonium carbonate which the liver takes from the blood as promptly as it is formed and converts into urea, is highly toxic to the body. A low blood urea, a low blood non-protein nitrogen, a high blood amino-acid nitrogen, a high protein-nitrogen, a high NPN/urea-N ratio, and a high urinary ammonia, indicate impairment of this function.

2. The carbohydrate metabolizing function of the liver is capable of fairly accurate estimate by means of the administration of the proper carbohydrate under the proper conditions, and the determination of the unmetabolized remainder in the urine. Galactose is the carbohydrate of choice for the following reasons:

a. It is readily and rapidly absorbed from the gastro-intestinal tract; it does not produce gastro-intestinal disturbances with their consequent loss of carbohydrate by diarrhea, vomiting, or bacterial action.

b. Of all the monosaccharides, it is the most difficult for the liver to build up into glycogen; in dehepatization experiments with animals, galactose is always the last and least sugar to be utilized by the body. It furnishes the most sensitive test because it puts the greatest load on the liver.

c. It is not utilized by the muscles; it is taken up exclusively, even though with difficulty, by the liver.

d. There is no kidney threshold for galactose.

e. The excretion of galactose is not affected by kidney pathology.

f. The excretion of galactose is not affected by endocrine gland activity. Insulin does not affect it in any way. It can be used in diabetes as a test substance for liver function; the only modification being necessary here is a separation of the dextrose and galactose in the urine; this is easy because galactose is not fermentable by yeast.

g. The normal individual absorbs 37 grams of galactose at a single dose. The amount absorbed is not affected by age, weight, or sex. The amount used in testing is 40 grams; normally, 3 grams are recovered in the urine. Any amount larger than that indicates pathology.

h. Blood galactose determinations would be desirable; but no method has as yet been developed.

Pathological galactosuria may be present in patients without liver disease: in hyperthyroidism, neurosis, Addison's disease, continued fevers; all of them involving disturbances of the autonomic nervous system. Physiology confirms this; the carbohydrate-handling function of the liver is known to be partially under the vegetative system and associated with endocrine gland activity. This need cause no confusion in the interpretation of laboratory findings, as these conditions are all readily recognizable by clinical means.

An impaired galactose tolerance definitely indicates liver pathology. A normal galactose tolerance does not rule out liver pathology.

3. The bile-pigment excretory function is determined by:

a. Direct colorimetric measurement of the unexcreted bile pigment in the blood serum: the icterus index. This test measures liver function only when it can be proved that the failure of the pigment elimination is not due to mechanical obstruction in the bile-tracts. It will not distinguish between obstruction and liver-cell damage. Bile pigments can be measured in the serum by direct colorimetry only when their concentration is high. The presence of carotene in the serum vitiates the readings; but this error can be obviated by withholding from the patient's diet for a few days the carotene-bearing foods, such as carrots, eggs, oranges, etc.

b. When the amount of bile pigment in the serum is too small to be directly visible, it can still be detected and measured by developing the color with Ehrlich's diazo-reagent: the van den Bergh test.

The differences between the direct, delayed, biphasic, and indirect van den Bergh reactions depends on the concentration of bilirubin in the serum, and on nothing else. There is no other kind of specificity about these changes. All of the phases can be brought out by adding icteric serum in graduated amounts to normal serum. If this reaction helps differentiate between obstructive and hemolytic jaundice, it does so only because hemolytic jaundice causes slighter changes in the concentration of the blood bilirubin. There can hardly be much diagnostic object in careful quantitative van den Bergh determinations, except possibly for the purpose of gauging the direction in which changes are proceeding.

c. The detection of pre-hepatic pigment, which is excreted in the urine because the liver cells have failed to take it up and eliminate it, is also possible; the urobiligen test, carried out with Ehrlich's reagent: paradimethylaminoazobenzaldehyd, has not been widely used, but there is evidence to indicate that it is of clinical value.

Judicious use of a representative combination of the tests here discussed will throw valuable light on the status of the liver's function. However it is asking too much to expect any laboratory procedure at the present time, to measure with any accuracy, the degree of hepatic insufficiency. The habit of basing a perfunctory decision on a routine laboratory test without going carefully through all of the reasoning, is a dangerous one. Indulgence in it, preoperatively for instance, will destroy the surgeon's faith in the laboratory. There is no absolute word on liver function possible from the laboratory; the final decision is with the clinician.

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## HER NEW JOB

A colored man injured in a motor accident died, and the insurance adjuster went to investigate.

"Did Washington P. Johnson live here?" he asked the weeping woman who opened the door.

"Yassah," she replied between sobs.

"I want to see the remains."

With a new sense of importance the dusky widow drew herself erect and answered proudly, "I'm de remains."—Wall Street Journal.

# SOME OBSERVATIONS ON COUNTY HEALTH WORK*

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The taking over of the responsibilities of part time health officer after several years of a full time health unit was one of many potential difficulties. Fortunately for myself, if not so lucky for the public, was the fact that the administration immediately preceding had not functioned with full efficiency. Nevertheless, there were many changes in detail necessitated by the present health officer being, also, a private practitioner.

Our Brown county health office, now, consists of the following set-up: Health officer, part time; county nurse, full time; and, a recent addition, an office clerk located in the court house. The nurse by contract is under the supervision of the health officer who is responsible for the program developed.

Briefly, our program consists of the nurse's inspection of all grade school children; the control of communicable disease (which includes proper disposal of contact cases); educational clinics, conferences, demonstrations by nurse in cooperation with the County Medical society, the latter of which has been given 100%; follow-up work by nurse in cases of defective children; cooperation with county and city welfare boards; keeping of records; correction of insanitary conditions; medical care of inmates of jail and county farm; reports made to parents of defects in their children discovered by examination; close cooperation of health office with schools in matters pertaining to health; sanitary inspection of school properties annually with subsequent reports to clerks of school boards. A very numerous detail, of course, is included among these major activities. The salary of the health officer is too small to warrant his spending more time in personal work than is legally required.

To accomplish such a program, it is necessary to have the cooperation of medical profession, civic clubs, and, first of all, a nurse of unquestioned integrity ethically, and gifted with a love of the work as well as possessing exceptional abilities, professional and diplomatic. A weekly column in the Hiawatha Daily World has been conducted as an educational effort.

There is no county physician. The indigent are privileged to call the doctor of their choice nearest to them. A special fee scale agreed upon between the county commissioners and the County Medical Society governs the fees. The health office aids indigents in securing corrections of physical defects.

The public had become accustomed under full time service to call upon the health office for free diagnosis, advice, and in many instances, for free treatment. Nurses, in the past, had made diagnoses, disputed physician's diagnoses, given treatment and committed other ethical crimes. In taking over the office I found large supplies of ointments and medicines (these were later given out to indigents on order from doctors). These practices were inimical to the interests of the medical profession, pauperizing to the laity. I felt it my duty to stop them. Therefore I prepared the way by publishing in the *World* the duties of health officer as of my contract with the county commissioners. I have consistently followed those rules.

The public did not at once understand, of course. It was not uncommon for me to refer several cases per day, after school opened, to their family physician. This was done regardless of financial ability. You doctors had hurled back at you, financial cripples, dead-beats, and prosperous patients alike. There was many a snappy argument over why I should not drive forty miles, more or less, to see whether a case was one of hives or measles.

Mrs. Phillips, as county nurse, has not in any of her investigations made a diagnosis. Her instructions were that if the evidence warranted a suspicion of contagious disease she was to placard the house and instruct the inmates as to terms of quarantine. She told them that if a reputable physician would give a statement over his signature that such a disease did not exist quarantine would be released immediately. This action avoided the necessity of the nurse making definite diagnoses, complied with State Board of Health rules and protected the public.

Since many more cases of minor contagions were without services of doctors than with them, something like this rule was necessary. In all cases of major contagions I handled the quarantine arrangements personally as the state rules require. I did not, except in occasional cases, visit the premises of minor contagions. In only one instance was I called upon to decide differing diagnoses by physicians.

In almost every district in which contagious disease occurred was at least one family unsympathetic toward community protection. The sheriff was enlisted in these cases at once with the result that obedience to quarantine was enforced even if the mental attitude of the family was unchanged.

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*Read at Brown County, Kansas, and Richardson County, Nebraska, joint medical meeting, June 22, 1934.

There was only a single instance in which a physician misbehaved. He made quite a lot of war talk, but the arousing of the better element of the public of his community in favor of the rules of the health office caused him to decide over night to cooperate, which he did perfectly thereafter.

The health office in every way possible endeavors to protect the interests of the physician. It is surprising how often the word of a person unskilled and untutored in the recognition of disease is taken in preference to that of a physician. Often an old woman has only to say "Well! I never saw a case of scarlet fever like that before!" to cause the health officer considerable exercise of his vocabulary.

The cooperation of the doctors has been practically perfect. If all cases of communicable disease have not been reported promptly it has not been their fault.

The health office is indebted to teachers for information leading to many cases for quarantine. Neighbors of sick folks have been on the alert when no physician has been employed. As soon as citizens discovered that their names were not used in our investigations we gained many profitable leads through lay sources.

As to morbidity statistics: From July 1, 1933 (when I took office) to June 22, 1934, there were reported:

| | Cases |
|---|---|
| Scarlet fever | 62 |
| Meningitis | 1 |
| Typhoid | 2 |
| Measles | 280 |
| Chicken-pox | 69 |
| Mumps | 56 |
| Whooping cough | 96 |
| Undulant fever | 1 |
| Pneumonia | 6 |
| Diphtheria | 3 |
| Tuberculosis | 5 |

Scarlet fever was pretty well spotted all over the county. Morrill and Fairview, perhaps, offering at the beginning of the school year the greatest threat of epidemic.

Measles was greatest in incidence of cases in Horton, Robinson, and Willis. Fifteen cases of this disease in Hamlin were traced to exposure by a sick teacher who attended and helped direct the county musical festival. This is the blackest mark against the teachers.

Chicken-pox, whooping cough, and mumps were in every community. Hiawatha, because of recent epidemics, suffering less than most localities. The undulant fever, meningitis, and typhoid cases were in Horton.

In my column of Health Office Notes in the *Daily World* once a week, I have attempted to inform the public of medical matters from our viewpoint. I have heard comments which lead me to believe that the notes are widely read. It is my intention to continue the column and to try to make it of educational value to the public. I hope it may be of benefit to the profession by placing arguments favorable to medicine before the readers.

The work of the health office gained complexity with the government's relief work. The fruits of the depression plus the alphabetical administrations have made consultations with case workers, probationary officers and commissioner of the poor of almost daily occurrence.

I am glad to report that in spite of varying viewpoints, sometimes resulting in serious arguments, the health office and these representatives of county, state, and federal governments are still working together amicably. On several occasions I was able to protect the interests of the profession.

I have not wittingly used my office to advance my personal fortunes. It has been necessary to do many things not legally required. Many requests it has been impossible to grant. Some of these requests were reasonable from the modern view of public health work, but the modern view of public health work does not contemplate part time service.

I wonder if I may add a word of discussion about full time health work. I will be very brief. Such a unit failed in Brown county. It seems to me that, as now organized, full time units are not feasible. I agree heartily with the principle of the full time health unit. However, to carry out efficiently the program of the United States Public Health Service with only one doctor, one nurse, and one clerk is like trying to run a thousand horsepower factory with a hundred horespower engine.

In addition to the minimum personnel for a county with the population of Brown not less than two nurses and a sanitary officer are needed. Until greater appropriations are available, this is impossible. Another impediment to successful operation is the character of personnel.

A full time health officer must have the "intestinal equipment" to resist the pressure brought on him to prescribe and to keep entirely to the educational and protective departments of medical work. A public health nurse must have the same fortitude in applying the principles of ethics of her profession. Of course, both must have specialized knowledge. Too often, both officer and nurse stray away from strict ethics.

The pressure upon the full time health officer to prescribe is terrific. To refuse breeds unpopularity with a large class. To acquiesce violates the ethics of the service and gains the enmity of the medical profession. It is easier to find ethical doctors than nurses. Nurses by unethical conduct have ruined many promising set-ups in full time work. Briefly these are reasons which I believe make the successful operation of full time offices impracticable.

Brown county, now, has a nurse in Mrs. Phillips who is mighty close to 100% efficient. I believe that her work alone would make any health office successful. Her heart is in her work. To accomplish her ends (some of them self-imposed) she has put in longer hours than any other county employee. Her follow-up work after school inspections has resulted already in more than 175 known corrections. She will keep as busy this summer with home nursing demonstrations, mothers' conferences, first aid classes, follow-up work as she has been this winter. Her work is educational. It is in no sense that of a visiting nurse. She will go to a sick room, demonstrate the technic of necessary procedures to carry out doctors' directions. In other words she will show unskilled attendants how to care for the patient.

Her classes and demonstrations are more sought for by rural districts than they are in town. In fact, the rural districts have proved more cooperative in every way than urban centers.

The health work of the county needs an immunization campaign. Without a scare the people will not provide against illness. It is my opinion that the medical profession should have charge of such a campaign and should receive remuneration for the valuable service rendered.

Several counties in Kansas have arranged to have vaccination against smallpox and diphtheria done by members of the medical societies, the doctors charging one dollar for each immunization, the county paying for indigent cases. There are approximately 1,500 of grade school age unimmunized against diphtheria, over 1,000 not vaccinated for smallpox. Including all children over one year, the number would be doubled at least.

I would be interested to know the reaction of the doctors to such a campaign. While the fee is low, these fees are otherwise unobtainable. The state will furnish the vaccines, etc. There is no question about the benefit to the public.

I am wholly opposed to having this service given gratis. At the same time I understand the necessity of preventing these preventable diseases and the reluctance of the great majority of the people to pay the regular fee for such immunizations.

I think some scheme fair to all concerned should be devised and presented to the commissioners to be carried out after the beginning of school next fall. The health office will be glad to do the preliminary work of such a campaign.

I believe that cooperation by the medical society as a body in matters relating to public health will result in dividends not otherwise obtainable, at the same time serve the public more efficiently than the under-organized unit. Also it will be a step taken toward re-establishing ourselves in public regard.

If the medical society would organize a speakers bureau with two or three men available for addresses to clubs and public meetings on subjects pertinent to health education. I believe our cause would be helped. Many of our civic organizations have little real knowledge of what medicine is trying to accomplish. I believe that to bring to them facts concerning these things will result in adding supporters to our cause.

The Brown County Medical Society, although small numerically, stands in the forefront of medical organizations of the state in points of accomplishment and aggression. Why not push ourselves farther forward by becoming leaders in public health education by doing, insofar as we can, the work now being done by larger societies? It seems to me that the reaction of such work will be favorable to our pocketbooks and give us greater influence socially and politically. The play in public medical affairs has been largely taken from the medical profession by lay bodies. This is because we have been sleeping on our rights.

State medicine is only a short step away. We must take the lead if we want the game to go our way. I add that discussion to this rambling paper because as physicians in organized medicine we are keepers of the public health and should continue so; and not permit the administration of preventive or curative measures to pass out of our hands into the keeping of lay agencies as has been the trend of late years.

### CONCLUSION:

I believe there has been less unpleasant friction between the health office and the general public than for some time. The public has not received all it has wanted, but there is no system yet produced which could wholly satisfy that great body of people. I believe that it will not hurt the public to pay for a part of what it receives.

The health office welcomes suggestions from the medical profession. If we are doing something which you do not like, tell us about it. If changes can be made they will be. If we can do more than we are doing consistent with the organization of a part time office, we shall be glad to consider suggestions to that effect. You may be sure that the health office will cooperate with organized medicine in every way possible.

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# ANAPHYLACTOID PURPURA

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Cases of purpura are of two general types: (2), thrombocytopenic, and (2), non-thrombocytopenic. Under the first heading are classified primary or essential thrombocytopenic purpura (Werlhof's disease), and many secondary or symptomatic forms. In these cases there is a marked deficiency of blood platelets, a prolonged bleeding time, and a decreased retraction of the clot. In the second group are classified those cases in which the platelet count, bleeding time and clot retractility are normal. Under this heading are placed, among others, the cases of purpura, described as the Schönlein-Henoch group, or the Osler "Erythema group of skin lesions with visceral manifestations."

Observing clinicians in the early part of the last century, recognized cases of purpura with arthritic pains, abdominal colic, and variable skin manifestations, and distinguished them from true purpura hemorrhagica (Werlhof). Their descriptions resulted in the various groupings, such as, peliosis rheumatica or Schönlein's purpura, and Henoch's purpura. Osler reported cases over a period of years, and stressed the association of various skin lesions—(purpura, urticaria, angioneurotic edema, erythema multiforme)—with visceral manifestations—(abdominal pain, nephritis and acute arthritis)—for which he used the descriptive title, "Erythema group of skin lesions with visceral manifestations." In his later writings on this subject, he hinted at their possible anaphylactoid nature when, in 1914, he stated: "Before long the anaphylactic key will unlock the mystery of these cases.' '

The term anaphylactoid purpura was used by Frank in 1915. Glanzmann however, gives prior credit for its use to Pfaundler. Glanzmann suggested that in these cases a foreign protein of bacterial origin was the cause of the anaphylactoid reaction. Others suggested that some histamine-like substance was absorbed from the intestinal tract. Alexander and Eyermann in 1927 were probably the first to offer evidence that some of these cases were the result of a true "food allergy.' ' They reported three cases under the title, "Allergic purpura." Again in 1929, they reported a second series of cases to substantiate their conception of a true food allergy in cases of Henoch's purpura.

Whether all cases falling under this general heading are of an anaphylactoid nature, is a debatable question. Yet certain criteria might be set down, the fulfillment of which would justify a diagnosis of anaphylactoid or allergic purpura due to food allergy:

1. A family history of allergy.

2. Positive skin tests in response to the injection of specific allergens.

3. Improvement after dietary restrictions.

4. The recurrence of symptoms of Henoch's purpura after deliberate feeding of the offending food.

5. A positive indirect skin reaction after the method of Prausnitz and Küstner.

The following case, we feel, fulfills all these criteria and justifies a diagnosis of anaphylactoid purpura.

## REPORT OF CASE:

R. O., male, age 14 years, white, schoolboy.

The significant facts, pertaining to allergy in his family history are as follows: Grandfather on father's side has had frequent attacks of bronchial asthma for the past eleven years. One uncle on his mother's side has had occasional attacks of hay fever and asthma for the past eight years. His mother suffers with periodic attacks of migraine.

The patient gives a past history of having had measles, pertussis, scarlet fever, pneumonia and several attacks of sore throat. He has however had no acute febrile disease in the past four years. There is no previous personal history of hay fever, asthma, urticaria, angioneurotic edema, migraine or eczema.

His present complaint began on March 1st, 1934, when he developed a swelling on his right ankle while sitting in his seat in the schoolroom. A few hours later he developed low abdominal pains of a cramp-like nature, and a dull headache.

When first seen four days after the onset of his illness he complained of severe abdominal pains, a continuous dull headache and pain in both ankles. He had vomited several times during the preceding two days, at first a clear vomitus, but later streaked with blood.

On examination the boy appeared to be in moderate shock. His respirations were 30 per minute and his pulse was feeble, the rate being 115 per minute. The skin, particularly over the joints, was covered with areas of petechial hemorrhage. There were several elevated swellings, ranging from 2 to 6 cm. in diameter over the extremities, and one over the left parietal region. These were whitish or waxy in appearance annd few of them showed purpuric discoloration. They presented a quite characteristic appearance of angioneurotic edema. Both ankles were swollen, but not very tender. Few small hemorrhagic areas were noted in the conjunctiva of the left eye and the mucous membrane of the mouth. Aside from the increased rate physical examination of the heart disclosed no abnormalities, and the chest findings were normal. The abdomen presented a moderate degree of generalized rigidity and a diffuse tenderness. The spleen was non-palpable. The temp. was 100.2 F. by mouth. The hemoglobin was 96% (Sahli). R.B.C's. numbered 5,400,000, and the W.B.C's. numbered 12,800 wtih 78% poly's., 20.5% lympho's, 1.5% mono's. The clotting time was 6 minutes by skin puncture. Bleeding time was 1½ minutes. Retractile time: beginning slightly in 45 minutes, complete in 24 hours. The blood platelets numbered 322,000 per cu. mm. The urine was clear, Sp.-gr. 1.018 and contained no sugar or albumin, but microscopically few R.B.C's. could be seen in an uncentrifuged specimen.

During the next five days the patient's condition became gradually worse. Recurrent showers of petechial hemorrhages literally covered the body and extremities. The mucous membranes of the mouth contained hemorrhagic areas as did the conjunctivae of both eyes, and both membrana tympani. The emesis continued and the vomitus periodically contained small quantities of blood. Streaks of bright red blood were also noted in the stools. The number of red blood cells in the urine at times was marked. Whereas the bleeding was quite generalized the actual amount of blood lost was small. The abdominal symptoms became aggravated, some distention developed, and at one time the abdominal tenderness and muscular rigidity was so marked that it was difficult to rule out a "surgical" abdomen.

About the tenth day of his disease he developed considerable pain in the right side of his chest, and several small areas, with an increased dullness to percussion, and over which a friction rub could be heard, were detected in the right base. A pericardial friction rub likewise developed. The pulse by this time was around 140 beats per minute, the respirations 40 and his temperature rose to 104.2 F. The patient was listless, semi-comatose and generally going bad.

Because the loss of blood was relatively small and the dehydration marked there was a concentration of cellular elements in the blood stream. The Hb. at this time was 100% (Sahli) 95+% (Tallquist). The R.B.C's. numbered 6,160,000, and the W.B.C's. 34,600 with 83.5% poly's., 16% lympho's and 0.5% mono's. Clotting time was 6 minutes by venous puncture and skin puncture. Bleeding time was one minute. The retractile time began in 1 hour and was complete in 24 hours. The blood platelets numbered 384,000 per cu. mm.

Treatment up to this time consisted of giving calcium lactate by mouth and calcium gluconate intravenously in the early course of his illness. Several injections of the father's whole blood had also been given intramuscularly in 30 cc. quantities. Dilaudid 1/64 gr. was given when necessary for pain, and phenobarbital for restlessness. Adrenalin chloride in four min. doses was given hypodermically, with some relief of abdominal symptoms. Tr. Belladonna in four min. doses given about 20 minutes before meals seemed to quiet his nausea, and enable him to retain some food. Fluids were given in quantities by mouth when retained, and by retention enemata, as well as by hypodermoclysis. He had been given a general light and liquid diet with a fair amount of milk.

On the eleventh day of his illness, because the possibility of allergy was suspected, he was placed on an elimination diet as suggested by Rowe, and by Dale and Thornburg. Despite the fact that his condition had become desperate, an improvement was noted in the next 24 hours, and continued for the next four days. The temperature dropped to 101 F., the pulse rate to 115 per minute, no new areas of petecheal hemorrhage were noted, and vomiting ceased. The abdominal pains however continued to be quite severe and persistent. Small quantities of halibut and mutton were added on the third day with no untoward effect, but on the fifth day the addition of a small amount of bacon to his diet brought on a new shower of petecheal hemorrhages about the ankles and an area of angioneurotic edema under the left eye. With the restriction of pork these symptoms again subsided but four days later when two ounces of milk were given a similar but more severe reaction followed. Chicken, fish, beef and other proteins were gradually added but all dairy products, eggs and pork were entirely restricted for the next two weeks. During this period only one flare-up occurred, and this followed the ingestion of a small amount of milk given inadvertently. Five weeks after the onset of his illness, milk was added to his diet in drop doses and gradually increased. Pork was subsequently added in small quantities with no reaction. Eggs, to which he seemed to have a natural antipathy had not been previously given but when added to his diet, at this time, in small amounts produced no allergic manifestations.

The most persistent symptom was the abdominal pain, which continued for about four weeks gradually getting less. During this time entire casts of gastrointestinal mucous membrane were extruded from the bowel.

Following the marked clinical improvement due to total restriction of protein intake, an effort was made by means of skin tests to determine sensitivity. Both the direct cutaneous test and the method of passive transfer, or Praūsnitz-Küstner phenomenon were employed. In the direct cutaneous tests eight different food proteins were used. Of these milk, and pork gave positive reactions and egg albumin a moderate reaction. The remaining five gave negative results.

Milk, pork and egg albumin, together with beef and mutton were employed in the passive transfer method. In the method of passive transfer (Prausnitz-Küstner) a small amount of blood serum from the patient was injected into the skin of the father, a known non-allergic individual, at different sites. After twenty-four hours the five selected proteins and one control were applied intra-cutaneously at the site of the previous inoculations. The milk and pork both gave a marked positive reaction in a few moments, the remainder gave negative tests.

For a period of six months following his illness the patient was checked from time to time but no evidence of allergic manifestations were found. At the last examination, made on Oct. 15, 1934, he was enjoying good health, had gained eighteen pounds and was able to eat any food with no ill effect.

## SUMMARY

1. A case of Henoch's Purpura in which an allergic factor was demonstrated, is reported.

2. The possibility of food allergy should be considered in cases of purpura falling in this group.

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# INTRAPONTINE TUMOR*

## REPORT OF ONE CASE

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The following case of pontine tumor is reported for three reasons: 1. It is rare. 2. It manifested lack of intracranial pressure symptoms. 3. If recognized such a tumor should be regarded as inoperable.

Horrax(1) says that pontine tumors constituted only 1.5 per cent, or 15 cases, in Cushing's records of 1000 intracranial tumors. In the group there were seven males and eight females. The average age was 22 years and duration of time from onset of symptoms until admission to hospital 13.6 months. Only one of the tumors was a tuberculoma, while the rest were infiltrating gliomas.

Buckley(2) in 1930 reported upon a pathological study and classification of twenty-five pontine gliomas from the Peter Bent Brigham Hospital. These were taken from a collection of 1737 intracranial gliomas verified to July 28, 1929, in that hospital. Of the twenty-five only four involved the pons alone.

Sachs(3) states that the characteristic symptoms of primary intrapontine tumor are lack of increased intracranial pressure, absence of choked disc, rapidly developing symptoms and paralysis of cranial nerves, especially the fifth, sixth, ninth and tenth nerves. Complete bilateral sixth nerve paralysis is a striking finding and is an especially valuable focal symptom. When it develops it remains complete. Choked disc may develop if the tumor surrounds the aqueduct of Sylvius and Sachs(4) cites such a case.

If a certain diagnosis of intrapontine tumor can be made it is considered inoperable. In the case here recorded the diagnosis was not absolute and an exploratory operation was done at the insistence of the family.

### CASE REPORT

(St. Joseph's Hospital, Case No. 32023-2).

SS.: male, age 9, Italian. Admitted September 20, 1933.

Past history: Negative.

Chief complaint: Squinting of the right eye, weakness of right side of face, and left arm and leg.

Present illness: About April 5, 1933, he developed abdominal pain and nausea mornings, with no relation to food and not relieved by soda. Occasionally he missed a day of school because of the nausea. About May 15, 1933, his mother noticed that his right eye was turning inward. Glasses were secured for the child. A few weeks later the family noticed that the left arm and forearm were limp. Soon he developed a peculiar gait and fell about like a drunken man. He would state that he was walking uphill away from an object and downhill toward an object. While walking he had a tendency to fall backward and to the left and if he fell it was toward the left. Two weeks before admission to the hospital he developed weakness of the right face and the lips pulled to the left on laughing or talking.

Physical examination on admission revealed a well nourished child with round, equal pupils reacting to light and accommodation. There was a vertical nystagmus on looking upward and lateral nystagmus to the left with wide excursion to and fro. The fundi were normal, as were the visual fields. There were complete paralysis of the right sixth, paresis of the left sixth, and paralysis of the right seventh cranial nerves, of the central type. The gag reflex was diminished on the right. The voice had a nasal tone. The tongue appeared in the midline, with no tremor. Hearing was normal. On elevating the hands and arms the left arm and forearm lagged. The neck was not stiff. The finger to nose and finger to finger tests revealed incoordination of the left hand. There were weakness of the left hand grip and weakness of the arm against resistance and flexion. The reflexes were active over both sides of the body and more so on the left. A positive Babinski and Oppenheim were present on the left, with patellar and ankle clonus. Coordination of the left leg was poor in the heel to toe and heel to heel test. The Romberg test was positive and he tended to fall straight backward and to the left. The general physical and laboratory examination, including x-ray of the skull, revealed no noteworthy findings.

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Clinical diagnosis: Pontine tumor, inoperable.

A few days after admission signs of medullary pressure developed, with difficulty in swallowing, choking sensations and cyanosis on exertion. Exploratory operation was requested by the parents.

Operation, October 7, 1933. Bilateral cerebellar exposure. Both lobes of cerebellum protruded under great tension. No tumor was found in the cerebellum but there seemed to be a mass in the right side of the pons. He left the table in shock and died three hours later.

Anatomic diagnosis (Z.N.K.)—Intropontine glioma. Recent trephine opening over occipital region of skull with fresh traumatic subarachnoid hemorrhage over cerebellar and occipital lobes.

Necropsy—"In the substance of the right half of the pons there is a soft yellow-gray mass measuring 1.5 cm. from side to side and about the same up and down, reaching downward to the medullopontine junction and bulging the right side of the pons forward and to the right. The cerebral ventricles are small."

Microscopic—"The tumor nodule compresses the adjacent pontine tissue, but is not encapsulted. It is quite cellular in places. The cells are pleomorphic, with rounded, oval and elongated large mononuclear cells. There are many blood vessels in the tumor, of the capillary and arteriole type. No hemorrhage or necrosis is seen. The endothelium lining many of the blood vessels is very prominent. There is gliosis in the surrounding brain."

Microscopic diagnosis: Spongioblastoma multiforme.

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# CHRONIC AND DELAYED TETANUS

## UNUSUALLY PROLONGED INCUBATION PERIOD IN A CASE OF TETANUS

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Cases of tetanus with delayed incubation period of months after the initial lesion are very unusual. During and after the world war not a few cases were reported in which tetanus developed a considerable period of time after the injury. Ernst(1) reports a case of tetanus developing 14 years after war injury from lighting up a wound with retained foreign body and quotes Hesse as stating the longest incubation period after war injury was 8½ months. Kaposi(2) reported a fatal case occurring 4½ years after injury and Brunzel(3) 7 years after injury; both of these cases followed surgical removal of projectiles.

In civil life, however, delayed tetanus occurring some months after injury is extremely rare, with scarcely any instances of generalized tetanus in chronic form lasting over a period of weeks being reported. Rhein(4) reported a case developing 90 days after injury and prophylactic treatment. The incubation period generally described is from one to 60 days. Fairly numerous cases occurring 3 to 4 weeks after an accident are described. Undoubtedly the local wound condition is responsible for the length of incubation period and also whether or not prophylactic serum has been given. Fildes(5) in describing the conditions under which tetanus spores may develop states that in necrotic areas the tension of oxygen may fall to zero and any spores therein will then germinate. The absence of germination is due to a positive tension of oxygen in the tissues. The presence of foreign body with tissue necrosis and secondary infection makes favorable media for the growth of tetanus bacilli.

The following case was one of delayed incubation period of 100 days and showed a chronic form of tetanus for five weeks before treatment. Because of its rarity and other unusual features we deemed it worthy of report.

Mrs. M. V., age 69, was referred by Dr. V. H. Magill of Curtis, Nebr., on November 6th, 1934, complaining of generalized motor convulsions of six weeks duration. The past history was unimportant until June 21, 1934, at which time the patient tripped over a stick, driving it into the instep of the left foot and apparently spraining the ankle. The patient pulled the splinter out, finding it covered with ashes, and thought it was completely removed. The attending physician treated the wound locally and gave 1,500 units of tetanus antitoxin. The foot had never been free of soreness since the accident and slight swelling of the ankle was present at times.

About October 1st the patient noted painful muscular spasm in the left leg, gradually spreading to the back region. These spasms progressed increasing in severity so that upon walking she would almost fall over. After about two weeks the spasmodic contractions had become generalized over legs, back, abdomen, head and neck. The attending physician noted that sensory stimulation of various types, such as touching the abdomen, would cause a generalized convulsion. The jaws became set so that she was unable to remove artificial dentures and would strangle upon swallowing. A severe hemorrhagic urticarial eruption was present over the abdomen and pelvic regions. Complete laboratory studies gave results within normal limits. The patient had been receiving several grains of pantopon daily to control the seizures for the past two weeks.

Upon admission to the hospital the general physical examination revealed a patient extremely weak and dehydrated. The general physical examination was negative for organic disease except for the left ankle, which was tender about the region of the inner malleolus; there was a small discolored area over the dorsum, showing the point of entrance of the wooden splinter. The neurologic examination was negative except for the unusual motor convulsive seizures and generalized muscular rigidity. The facies was drawn in a typical risus sardonicus and the jaws were tense and could be separated only very slightly. Any sensory stimulation would induce a generalized motor spasm of face, neck, back, abdomen and legs. The abdominal and leg muscles were extremely rigid even between the convulsions. The patient was suffering extreme pain.

A diagnosis of tetanus was quite apparent. The chronicity was the unusual feature. The patient was given 10,000 units of antitoxin intramuscularly, intravenously and intraspinally along with 2 cc. of 25 per cent magnesium sulphate intraspinally. The symptomatic treatment used for the convulsions was sodium amytal three grains every three hours. It was decided to radically explore the left foot upon the belief that there must be a foreign body present with retained infection acting as a focus. One of us (M. G.) made a vertical incision over the dorsum of the left foot, starting at the scar where the wood was supposed to have entered previously. This was extended up about 3 inches, the skin flaps and tissues reflected laterally. The annular ligament showed scarring and shredding from the previous injury. Just at the medial side of the midline was a small area about the size of a dime which looked like dirty, fatty material of greyish color. This proved to be the beginning of a sinus tract about 3 inches long, extending toward the medial malleolus, where it became subcutaneous. Spreading of the sinus allowed free pus to well out of the wound. The sinus was laid wide open with only the tendon of the tibialis anterior left crossing it. At the superior medial extremity of the sinus was found a piece of wood 1 inch by ¼-inch and also a smaller splinter. As much of the necrotic tissue as possible was removed and 5,000 units of antitoxin was injected into the walls of the tract. A simple Penrose drain was introduced and light dressings were applied.

The pus from the wound showed spores and bacilli diagnostic of tetanus organisms, although we were unable to grow them upon culture media.

For several days following the surgery the patient continued to have generalized convulsive seizures which then subsided markedly. A low grade temperature persisted, along with myocardial irregularity and a few rales in the bases of the lungs, for about one week. The second week the convalescence was very rapid and the patient was dismissed to her home two weeks after admission, almost entirely symptom free.

### COMMENT

This case is unusual, first because of the long period of incubation. Localized tetanus developed 3 months after the initial injury. Second, generalized tetanus persisted in chronic form for several weeks before curative treatment was instituted. The delayed incubation period undoubtedly was caused by the prophylactic dose of antitoxin, but illustrates the fact that a 1500 unit injection is not fully protective, especially if a foreign body remains in the local wound. Also tetanus may assume a chronic form in the presence of a foreign body. The case further teaches the need for radical treatment of a local lesion. All suspicious wounds should be explored and treated with antitoxin. We feel that too much emphasis has been placed upon the general treatment of tetanus. This patient would probably have recovered by treating the local lesion alone. In the general treatment of tetanus we feel that most patients are over treated and the cost can be reduced materially. A large curative dose of antitoxin should be given, followed by antispasmodics, barbiturates such as amytal or avertin, and magnesium sulphate intraspinally or curarine sufficient to control the motor spasms. We doubt if repeating the doses of antitoxin does much good, provided the focal lesion is eradicated. If the patient will not recover under this management he probably cannot be saved by giving massive doses of antitoxin.

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# TWO CASES OF TRICHINOSIS

JOHN BUIS, M. D.,
Pender, Nebraska.

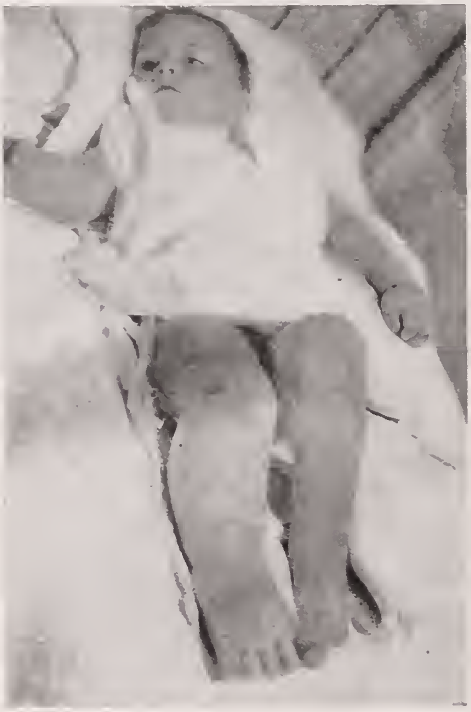
Baby P., male, age 15 months. Was first seen April 20, 1934, at 5 p. m. The chief complaint was high fever with edema of both arms and right leg. The onset was first noted two days prior. As all the members of the family had been sick with the "flu" for several days at various times the natural assumption was that the baby had the "flu."

Examination presented a child, semi-delirious with swelling of both arms and the right leg. A small scab was present on the right knee. Removal of the scab and staining of a smear showed staphylocci. The rectal temperature was 104°, respiration 80, pulse ?. There was no history of cough, discharge from the nose, or any respiratory infection. No abnormal chest findings. No history of diarrhoea or gastro-intestinal upset. The white cell count was 21,000. The differential count was stabs 40, segments 31, small lymphocytes 19, large 7, monocytes 1. The child was brought to the hospital where it was also examined by Dr. Pierson of Beemer, who happened in when the child arrived.

April 21. The highest temperature was at noon when it was 105 with respiratory rate of 55. Child seemed delirious all day. The swelling in the right leg was increasing. The urine was negative.

April 22. There was no change in the clinical symptoms. The white cell count was 21,000. The differential showed an eosinophilia of 14 per cent. This was the first clue to the diagnosis. The swelling of the arms was more pronounced.

A blood count and differential count was made on all the other members of the family. None of them had any rise of temperature or any clinical symptoms. They denied they were sick except the "flu" in past ten days.



| | W. Cell | E. | Stabs | Seg. | S. L. | L.L. | Monos |
|---|---|---|---|---|---|---|---|
| Mrs. P. | 22,000 | 27 | 6 | 30 | 24 | 7 | 6 |
| Girl, age 4 | 22,000 | 34 | 13 | 15 | 27 | 8 | 1 |
| Boy, age 6 | 11,200 | 53 | 6 | 9 | 23 | 9 | 0 |
| Girl, age 7 | 20,000 | 60 | 6 | 7 | 23 | 1 | 3 |
| Boy, age 2½ | 34,000 | 22 | 12 | 29 | 21 | 6 | 10 |
| Mr. P. | 7,000 | 0 | 0 | 63 | 27 | 6 | 4 |
| April 24: | | | | | | | |
| Baby | 32,000 | 71 | 2 | 2 | 5 | 4 | 16 |
| Mrs. P. | 20,000 | 69 | 0 | 5 | 23 | 2 | 1 |

April 24, hands cyanotic Especially left. Purpuric areas on the right leg. Marked abdominal distention. No abdominal breathing. Baby was seen by Drs. Francis and Benthack.

April 25, grunts with every respiration. Swallowing difficult. Can take only one or two swallows and has to stop to breathe. Edema of extremities not so marked.

April 26, 8 a. m., temperature 105.6°, respiration 70. Face and legs not so edematous. Swelling almost all disappeared from arms. Gives a nodular sensation in passing finger over arm. Also felt in legs. Has marked difficulty in swallowing. More apathetic. W. C. 42,000, E. 56, Seg. 1, S. L. 29, L. L. 7, Monos 8.

April 27. Had been fairly comfortable all night. Mother had waited on child, went to an adjoining room and when she returned the baby had died.

Permission for tissue examination of the leg was obtained and sent to Dr. Eggers at Omaha. His report follows:

"Frozen section of the muscular tissue received from you this morning, but as I feared, they were not satisfactory. I could not find any trichinae in them but there were very definite areas of round cell infiltration, such as occur around recently lodged parasite. Am having paraffin section prepared. However, the parasites are very capricious in their lodgement, and failure to find them would not rule out the disease.

"I regret to say that even in the paraffin sections I was unable to find trichinae. Frequently individual muscles fail to show them."

These findings correspond with the chronological history of the disease.

W. B., age 57. Laborer. Feb. 21, 1934, his wife brought a specimen of urine to the office as his hands and feet were swollen. She reported his temperature as 101°. The urine was negative chemically and microscopically.

Feb. 22, at 6 p. m., his temperature was 99°, pulse 80. Has a severe headache. Pain in the calves of the legs. Post malleolar spaces pit on pressure. Chest is negative. No abnormal heart sounds.

He then gave us the following history: On Feb. 7 one of the local churches served a sausage dinner. Approximately 200 people were served. After it was over some sausage was left. Some of this was given to his wife. When she arrived home with it he thought it was hamburger and ate a quantity of it raw. This gave us a clue to the diagnosis.

Feb. 23 a blood count and differential blood count was made. The white cell count was 28,000. The differential count, eosinophiles 16, juveniles 3, stabs 35, segments 26, small lymphocytes 15, large lymphocytes 5. Has a petechial hemorrhage over the abdomen and inner side of the thighs.

March 1, his temperature was 98°, pulse 90, has good appetite, sleeps fair, bowels regular. The edema of the face and hands has disappeared. But has marked edema of the lower extremities. The white cell count 52,000. The differential was not made.

March 8 at 2 p. m., his temperature was 98.4°, pulse 90. Complains of pains in the calves of the legs and the lower chest. The white cell count was 75,400. Eosinophilia was 71 per cent.

March 15. The last few days has a severe diarrhoea that begins about 3 a. m. Has six or seven loose stools and then no more till the next morning.

March 22. Pains in chest and calves of the legs have disappeared. Has some pain in the right ankle. Diarrhoea has ceased. Feels well. White cell count 50,000, differential not made.

## THE SONNET OF A DISAPPOINTED DOCTOR

Oh, thoughtless patient, whom I long ago did save
From pain and torture with a magic pill,
Whose anguished suffering I did still,
To whom the best within my power I gave;
Why do you let me sit at home and rave?
Why won't you try my cup of happiness to fill,
Which you could do if you would pay your bill?
Must I be doomed to fill a pauper's grave?
When she was ill I worked to save your wife.
I gave your child the best of skillful care.
I offered freely of my time and skill
To make for all of you a healthful life.
Now don't you think 'twould be but fair
If you would come around and pay your bill?

—Tonics and Sedatives

## COUNCILOR ANNUAL MEETING

### JANUARY 14, 1935

The annual meeting of the Councilors was held at the Cornhusker Hotel in Lincoln, January 14, 1935 at 2:00 p. m. The meeting was called to order by Dr. Boyer. The following members of the Council were present: Drs. Overgaard, Lehnhoff, Boyer, Brush, Bryson, Rork, Platt, Cooper, Davis, King, Potter, Douglas, retiring Councilor and President-elect Selby, President Bixby. In addition to these the following guests were also present: Dr. R. B. Adams, Secretary-Treasurer; K. S. J. Hohlen, of the Campaign Committee, E. R. Hays, Public Activities Committee; Dr. F. A. Long, of the Journal Committee; Dr. Rector of the American Society for the Control of Cancer; Dr. J. F. Kelley of the Cancer Committee; Dr. Way of Wahoo, and Dr. B. F. Bailey of the Public Policy and Legislation Committee.

Dr. Selby introduced Dr. Platt, new Councilor of the eleventh Councilor District; Dr. Selby having formally sent in his resignation to President Bixby due to his increased activities as President-elect, Dr. Bixby appointed Dr. O. R. Platt of North Platte to fill the unexpired term of Dr. Selby.

Dr. Cooper of Scottsbluff was elected President of the Council and Dr. Overgaard re-elected Secretary of the Council for the ensuing year.

Dr. Boyer retired from the chair and Dr. Cooper took the chair.

Inasmuch as the minutes of the last Councilor meeting were published in the Journal and approved by the House of Delegates at their last meeting a motion was made that the reading of these minutes be dispensed with and that they be approved as published. Seconded and carried.

Dr. Way, a guest of this meeting, asked for a few suggestions in regard to the FERA work being done in his county.

Dr. Hays, representative of the Survey Committee, gave a report as to the activities of this committee and explained the act which has been drafted as to changes in the State Department of Health. Dr. Hays suggested "that the Council investigate the conditions in the new set-up of the State Department of Health which was instigated with the inference of the Federal Relief Administrator."

Dr. Selby made a motion that inasmuch as this act was too cumbersome for the Council to consider with any degree of logic and inasmuch as the State Medical Association has committees which can take care of these matters that the Council receive this report and refer it to the proper committee. Seconded by Dr. King and carried.

Dr. Hays gave a short report on the Public Activities Committee. Dr. Hays reported that the Public Activities Committee had been wholly inactive during the year.

A motion was made by Dr. Potter that this report be received and placed on file. Seconded and carried.

Dr. Adams read the Secretary's report. Secretary Adams suggested that the Council appoint a small committee to confer with the Secretary to handle any emergency actions of a financial nature which may come up from time to time.

A motion was made by Dr. Potter that the secretary of the Council (Dr. Overgaard), Dr. Homer Davis and Dr. H. J. Lehnhoff be appointed as a committee of three to confer with the Secretary to handle any emergency actions of a financial nature. Seconded by Dr. Douglas and carried.

A motion was made that the Secretary's report be received, published and referred to the Auditing Committee. Seconded and carried.

An Auditing Committee consisting of three members were appointed by President of the Council Cooper as follows: Dr. Homer Davis, Dr. H. E. Potter, and Dr. H. J. Lehnhoff. The Auditing Committee were instructed to present their report at a later time during the meeting.

The report of the Scientific Committee was read by Secretary of the Council Overgaard.

A motion was made that this report be received and placed on file. Seconded and carried.

Dr. Selby gave a short oral report on the Insurance Committee.

A motion was made that this report be received. Seconded and carried.

The report of the Student Loan Fund Committee was read by Dr. Overgaard.

A motion was made by Dr. Douglas that this report be received and published in the Journal. Seconded and carried.

Dr. F. L. Rector, representative for the American Society for the Control of Cancer, appeared before the Council and gave a report on the Cancer situation in Nebraska, also a short history of the organization which he represents, its purposes, etc.

Dr. Overgaard made a motion that the Council extend to the American Society for the Control of Cancer its appreciation for the services of Dr. F. L. Rector and for the splendid survey he has made of the cancer question in Nebraska. Also that we extend the appreciation of the Council for the complete report which has been submitted to our Society. Seconded and carried.

The report of the Public Policy and Legislation Committee was given by Dr. Bailey.

A motion was made by Dr. Rork that this report be received. Seconded and carried.

A motion was made by Dr. Rork that the Public Policy and Legislation Committee be directed to formulate a set-up anticipating the passing of the F. E. R. A. contract. Seconded by Dr. Boyer and carried.

Dr. Kelley gave the report of the Cancer Committee.

A motion was made by Dr. Overgaard that this report be received and published in the Journal and that the Cancer Committee and Dr. Kelley be highly commended on their work. Seconded and carried.

Dr. Rork discussed the tuberculosis situation in the State Hospital at Hastings.

Dr. Hohlen stated that he had no further report for the Campaign Committee other than that given at the last Councilor meeting in May.

A motion was made by Dr. Potter that this report be received and placed on file. Seconded and carried.

A motion was made that the Council adjourn until after dinner.

### EVENING SESSION OF THE COUNCILOR MEETING, JANUARY 14, 1935

The meeting was called to order by President Cooper. All members of the Council attending the afternoon session and all guests with exception of Drs. Way and Rector were present. In addition Mr. Gene Huse of the Huse Publishing Company, Dr. J. M. Willis of the Cancer Committee, Dr. J. M. McCarthy of the Special Committee to investigate the Program and Dr. R. W. Fouts of the Medico-Legal Advisory Committee were also present.

Dr. Fouts gave an oral report of the Medico-Legal Advisory Committee. He stated that he would later submit his report in writing.

A motion was made by Dr. Overgaard that this report of Dr. Fouts be received and placed on file. Seconded and carried.

The following report of the Auditing Committee was submitted by Dr. Homer Davis:

We, the Auditing Committee in session assembled this date beg to submit the following report:

We have examined carefully the items of expenditures as submitted by the secretary for the year 1934 and find that they seem to have been made as directed by our Association. We find no items that show any excesses or extravagances.

We wish to congratulate those in control of our funds for keeping our expenditures within the limits of economy.

We have also examined carefully the items of receipts as submitted for 1934 and believe they are recorded in accord with the dues for membership and with the income from our various investments.

We recognize that this audit has been made in a rather general way.

Your Committee suggests that the Council look forward to a time when the funds of the Association will permit the authorization of an audit by a recognized bonded auditor.

Respectfully submitted,
Homer Davis,
H. J. Lehnhoff.
H. E. Potter.

Lincoln, Nebr., January 14, 1935.

A motion was made by Dr. Selby that this report of the Auditing Committee be received and published in the Journal. Seconded and carried.

Dr. J. D. McCarthy, chairman of the Special Committee appointed to investigate improvements in the program for the state meeting, gave the report of his committee.

After considerable discussion Dr. Lehnhoff made the following motion: "I suggest that mimeographed copies of this report be run off, a copy of which is to be sent to each member of the Council and each member of the House of Delegates prior to the regular meeting in May." Seconded and carried.

The report of the Publication Committee was given by Dr. Long.

A motion was made that this report be received, published in the Journal and placed on file. Seconded and carried.

A motion was made that the Council adjourn. Seconded and carried.

## SECRETARY'S REPORT

The Nebraska State Medical Association ended the year 1934 with a membership of 1,110 members. This was a gain in members of 58, only 1,052 being in good standing for the year 1933. During the year 1934, 63 members became delinquent, 68 new members were obtained and 53 were reinstated. In the opinion of the Secretary this is an encouraging sign and efforts will be made to show another increase this year.

During the year 1934, several very important matters were brought to the attention of the Association. First, Federal Medical Aid to the emergency indigent went through several phases. In the early part of the year the effort was made to conduct this through the County Societies as a unit. Later it was decided to add to this the sending of an agreement to each doctor in the state letting him decide as an individual as to whether he wished to cooperate in this work or not. At the same time each Councilor was asked to appoint an advisory committee of one or more members in each of his counties to act in an advisory capacity. This improved the working of the system, but difficulties still kept arising which the Federal and State Relief Administrators felt themselves unable to solve. This resulted in a request from them for a Medical Coordinator. Dr. K. S. J. Hohlen was appointed to this position. He has given much of his time to this work and those closely connected with it feel that he has gone a great way in making this work go smoothly.

The Annual meeting was held in Lincoln, in May. It was the second largest meeting in attendance in the history of the Association. As usual it was praised and criticised.

During the year also, the usual letters were mailed to delinquent members and eligible non-members. Some of the replies received were very interesting. They show very clearly that the Medical Profession as a whole is severely divided on the matter of State Medicine. This in the secretary's opinion is our weakest point and one that at present offers no method of solution.

A new Committee, The Cancer Committee, began its work and it will have its first report for the Council at this time. During its short existence, the Secretary feels that it has done excellent work.

All other Committees carried on their work in their usual good way, so far as there was work for them to do. The Committee on Public Policy and Legislation had an unusual amount of work to do.

The financial report which will follow will show that the General Fund spent $3,077.80 which was $325.30 more than its income. This is an increase in its deficit of about $200.00 over 1933, and is fully covered in the expenses of the Campaign Committee. This was taken care of by the balance in account due to Building and Loan withdrawals of the previous year. The Medico-Legal Advisory Fund spent $921.84. This leaves it with a balance for the year of $179.16. The Journal Fund received $4,849.03 from all income sources. It spent $5,985.77, leaving a deficit of $1,136.74, which was covered by withdrawals from Building and Loan investments. The Journal is still a matter of worry to the Secretary. Withdrawals from Building and Loan Associations have to be obtained through the stock loan method and it is probable that the State Banking Department will stop stock loans. If this happens the Journal will have to find new sources of income.

## REPORT OF THE COMMITTEE ON JOURNAL AND PUBLICATION

During the year 1934 we have held the Journal to what seems an irreducible minimum—forty pages monthly and but two or possibly three cuts at the expense of the Journal Fund. Authors have been very reasonable and considerate. Quite a number supplied illustrations and cuts at their own expense and this kept the Journal from looking too severely plain.

The financial statement of the business manager shows that the receipts from advertising are $357.80 above the receipts for the preceding calendar year. Smaller items of income added to the above show a total of $474.54 above the income of the preceding year. This is encouraging; but it also admonishes us that the same strict economy must be used during the current year.

It appears that if the council will, as formerly, recommend the sum of $1.50 for the subscription of each member the Journal can carry on and this is our request.

F. A. Long, Chairman.
A. F. Tyler,
B. F. Bailey.

## FINANCIAL STATEMENT CAMPAIGN COMMITTEE

JANUARY 14, 1935

TO THE HOUSE OF DELEGATES AND COUNCILORS

RESOURCES

| | | |
|---|---|---|
| Balance on hand January 15, 1934....$ | 10.97 | |
| Received from Secretary of the Nebraska State Medical Association, October 6, 1934.................................... | 500.00 | |
| Total cash on hand.................................................... | | $510.97 |

### DISBURSEMENTS

| | | |
|---|---|---|
| Long Distance calls | $ 9.88 | |
| Mimeograph repairs | 1.75 | |
| Postage, stationery, envelopes, supplies and stenographer's salary | 79.45 | |
| | | 91.08 |
| Balance on hand January 14, 1935 | | $419.89 |

## STUDENT LOAN FUND REPORT 1934

### RESOURCES

| | | |
|---|---|---|
| January 1, 1934, Cash on hand | $ 52.25 | |
| January 3, 1934, Interest on Loan No. 5 | 6.00 | |
| January 11, 1934, Interest on Loan No. 4 | 10.00 | |
| January 22, 1934, Nebraska State Medical Association | 50.00 | |
| February 9, 1934, Interest on Loan No. 4 | 10.00 | |
| March 27, 1934, Interest on Loan No. 4 | 10.00 | |
| June 23, 1934, Interest and Loan No. 5 | 106.00 | |
| August 21, 1934, Nebraska State Medical Auxiliary | 100.00 | |
| October 1, 1934, Nebraska State Medical Association | 300.00 | |
| October 2, 1934, Interest on Loan No. 6 | 6.00 | |
| Total | | $650.25 |

### DISBURSEMENTS

| | | |
|---|---|---|
| January 26, 1934, Loan No. 6 | $ 100.00 | |
| October 1, 1934, Loan No. 6 | 100.00 | |
| December 31, 1934, Cash on hand | 450.25 | |
| Total | | $650.25 |

### SUMMARY OF NOTES WITH INTEREST

| | |
|---|---|
| Student No. 1, note and interest | $112.00 |
| Student No. 2, note and interest | $336.00 |
| Student No. 3, note and interest | $212.00 |
| Student No. 4, note ($12.00 paid in advance) | $300.00 |
| Student No. 5, note | $100.00 |
| Student No. 6, note | $300.00 |

Committee—F. A. LONG,
H. J. LEHNHOFF,
A. P. OVERGAARD.

## GENERAL FUND

### STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

January 1, 1934 to December 31, 1934

| | | | |
|---|---|---|---|
| Cash Receipts: | | | |
| Membership Dues | $5,490.00 | | |
| Dues for 1933 | 15.00 | | |
| Total Cash Receipts | | $5,505.00 | |
| Cash Transferred to Other Funds: | | | |
| Journal Fund | $1,651.50 | | |
| Defense Fund | 1,101.00 | | |
| Total Cash Transferred | | $2,752.50 | |
| Balance Available for General Fund | | $2,752.50 | |
| Cash on Hand January 1, 1934 | | 1,011.47 | |
| | | $3,763.97 | |
| Cash Disbursements: | | | |
| Salaries—R. B. Adams | | $ 600.00 | |
| Rent | $ 180.00 | | |
| Telephone | 90.30 | | |
| Printing | 128.80 | | |
| Bank Charge | 5.50 | | |
| Government Check Charge | 2.26 | | |
| Stamps | 121.50 | | |
| Secretary of State | 1.00 | | |
| Insurance Premium | 5.00 | | |
| American Medical Assn. Membership Cards | 11.75 | | |
| Lincoln Printing, Membership Cards (1935) | 9.25 | | |
| Amsterdam Printing Co. (collection pictures) | 3.85 | | |
| American Medical Association (directories) | 24.00 | | |
| Flowers (Jonas) | 10.00 | | |
| Dr. Long (expenses) | 100.20 | | |
| Madison News (Dr. Long, stationery) | 5.50 | | |
| Star Mail (Dr. Long, envelopes) | 12.00 | | |
| Western Union | 5.35 | | |
| | | | $ 716.26 |
| Miscellaneous Expense: | | | |
| Councilor Expense | $ 327.45 | | |
| Huse Pub. Company (programs) | 58.50 | | |
| Program Committee: ($23.50—2 meetings), ($14.25—3 meetings) | 37.75 | | |
| Legislative Committee (7 meetings) | 53.55 | | |
| Speakers at Meeting | 76.35 | | |
| Public Address System (Loud speaker for meeting) | 20.00 | | |
| Student Loan Fund | 350.00 | | |
| Campaign Committee | 500.00 | | |
| L. C. Smith (Typewriter for office) | 55.05 | | |
| | | | $1,478.65 |
| Convention Expense: | | | |
| R. W. Fouts | $ 49.77 | | |
| B. F. Bailey | 47.97 | | |
| J. Stanley Welch | 38.15 | | |
| Alice Cary Gilchrest | 147.00 | | |
| | | | $ 282.89 |
| Total Disbursements for Year 1934 | | | $3,077.80 |
| Balance Cash on Hand December 31, 1934 | | | $ 686.17 |

## GENERAL FUND

### STATEMENT OF INVESTMENTS

January 1, 1934 to December 31, 1934

| | | |
|---|---|---|
| Investments on Hand January 1, 1934: | | |
| Cash Held by Omaha National Bank | $ 52.78 | |
| Securities Held by Omaha National Bank | 5,020.00 | |
| | | $ 5,072.78 |
| Balance in Account — Nebraska Central Bldg. & Loan | $1,914.42 | |
| Balance in Account—Omaha Bldg. & Loan Assn. | 1,357.29 | |
| Balance in Account—Conservative Savings & Loan | 2,717.20 | |
| Balance in Account—United Savings & Loan Assn. | 1,157.29 | |
| | | $12,218.98 |
| Additions to Investments During Year 1934: | | |
| By: Interest Credits — Omaha National Bank | $ 355.74 | |
| Dividend Credits—Omaha Bldg. & Loan | 24.80 | |
| Dividend Credits — Conservative Sav. & Loan | 82.10 | |

| | | |
|---|---|---|
| Investment — Omaha National Bank | 1,000.00 | |
| | | $ 1,462.64 |
| | | $13,681.62 |
| Withdrawals During Year 1934: | | |
| Omaha Bldg. & Loan Assn. 20% | $ 265.00 | |
| Nebraska Central Bldg. & Loan | 400.00 | |
| Investment Transfered from Bldg. & Loan to Bonds | $ 665.00 | |
| Trustee Fee | $ 10.00 | |
| Accrued Interest on Bond | 2.05 | |
| Purchase $400.00 U. S. Treasury Bond | 404.76 | |
| $600.00 U. S. Treasury Bond | 609.94 | |
| | | $ 1,026.75 |
| Investments on Hand January 1, 1935 | | $12,654.87 |
| Represented by: | | |
| Cash Held by Omaha National Bank | $ 46.77 | |
| Securities Held by Omaha National Bank | 6,020.00 | |
| | | $ 6,066.77 |
| Balance in Account—Omaha Bldg. & Loan Assn. | $1,117.09 | |
| Balance in Account — Nebraska Central Bldg. & Loan | 1,514.42 | |
| Balance in Account—Conservative Savings & Loan | 2,799.30 | |
| Balance in Account—United Savings & Loan | 1,157.29 | |
| | | $ 6,588.10 |
| | | $12,654.87 |

## MEDICO-LEGAL FUND

| | | |
|---|---|---|
| Cash Receipts: | | |
| Share Dues Received from General Fund | $1,101.00 | |
| Cash on Hand January 1, 1934 | 1,295.64 | |
| | | $2,396.64 |
| Cash Disbursements: | | |
| R. W. Fouts, Salary | $ 600.00 | |
| Attorney Fees: | | |
| I. S. Troester (Dr. Moore) | 50.00 | |
| Squires, Johnson & Johnson (L. W. Forney) | 150.00 | |
| Hall, Cline & Williams (Shoemaker vs. Hickman) | 75.00 | |
| | | $ 875.00 |
| R. W. Fouts, Expense | $ 46.50 | |
| Government Check Charge | .34 | |
| | | $ 46.84 |
| Total Cash Disbursements | | $ 921.84 |
| Balance on Hand December 31, 1934 | | $1,474.80 |

## DEFENSE FUND

### STATEMENT OF INVESTMENTS

January 1, 1934 to December 31, 1934

| | | |
|---|---|---|
| Investments on Hand January 1, 1934: | | |
| Cash Held by Omaha National Bank | $ 109.64 | |
| Securities Held by Omaha National Bank | 5,300.00 | |
| Balance in Account — United Savings & Loan | 1,157.29 | |
| Total January 1, 1934 | | $6,566.93 |
| Interest Credited During Year: | | |
| Omaha National Bank | $ 230.27 | |
| Addition to Investments: | | |
| U. S. Treasury $100 and $400 | 500.00 | |
| | | $7,297.20 |
| Cash Transferred: | | |
| Investment—Omaha National Bank | $ 507.44 | |
| Trustees Fee for Year | 10.00 | |
| Interest Accrued | 1.84 | |
| Expense on Called 4th Liberty Exchanged | .20 | |
| | | $ 519.48 |
| (Harvey Gosnell Loan paid in full, exchanged for U. S. Treasury Bonds. Amount $300.00) | | |
| Investments on Hand January 1, 1935 | | $6,777.72 |
| Represented by: | | |
| Cash Held by Omaha National Bank | $ 120.43 | |
| Securities Held by Omaha National Bank | 5,500.00 | |
| Balance in Account — United Saving & Loan | 1,157.29 | |
| | | $6,777.72 |

## JOURNAL FUND

### STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

January 1, 1934 to December 31, 1934 as Compared to January 1, 1933 to December 31, 1933

| Direct Journal Receipts: | 1934 | 1933 |
|---|---|---|
| Advertising Space | $2,903.30 | $2,545.50 |
| Cuts | 96.04 | 51.58 |
| Copies Sold | 10.40 | 6.50 |
| Subscriptions to Journal | 48.50 | 12.50 |
| Dividend—Cooperative Advertising Agency | 139.29 | 106.91 |
| Total Direct Receipts | $3,197.53 | $2,722.99 |
| Share Dues Rec'd—General Fund | 1,651.50 | 1,558.50 |
| Withdrawal: | | |
| Omaha Bldg. & Loan Assn. | $ 208.84 | $ 478.04 |
| Union Savings & Loan Assn. | 181.82 | 193.32 |
| Standard Savings & Loan | 323.88 | 60.88 |
| United Savings & Loan Assn. | 300.00 | |
| Omaha Natl. Co.—$200 Liberty Bond, Plus Interest | | 253.18 |
| | $1,014.54 | $ 985.42 |
| Total Receipts—All Sources | $5,863.57 | $5,266.91 |
| Direct Journal Disbursements: | | |
| Salaries: | | |
| Dr. F. A. Long | $1,200.00 | $1,200.00 |
| Rosa Runge | 900.00 | 900.00 |
| | $2,100.00 | $2,100.00 |
| Publication Expense: | | |
| Huse Publishing Company | $3,613.04 | $2,889.44 |
| Baker Brothers Engraving Co. | 179.65 | 151.15 |
| Bank Charge | 4.70 | 4.75 |
| Government Tax Charge | 1.10 | 1.12 |
| Universal Press Clipping Bureau | 42.00 | 42.00 |
| Code Authority | 10.00 | |
| Joyce Ayres Agency | 28.18 | |
| State Journal (cuts) | 7.10 | |
| | $3,885.77 | $3,088.46 |
| Total Direct Disbursements | $5,985.77 | $5,188.46 |
| Excess Disbursements Over Cash | $ 77.28 | |

| | | |
|---|---|---|
| xcess Cash Over Disbursements.... | | $ 78.45 |
| ash on Hand January 1 | 154.22 | 75.77 |
| otal Cash on Hand | 76.94 | 154.22 |

## JOURNAL FUND

### STATEMENT OF INVESTMENTS

January 1, 1934 to December 31, 1934

| | | |
|---|---|---|
| nvestments on Hand January 1, 1934: | | |
| Balance in Account—Omaha Loan & Bldg. Assn. | | $2,099.62 |
| Balance in Account—Standard Savings & Loan | | 1,156.71 |
| Balance in Account — Union Loan and Savings Assn. | | 1,805.42 |
| Balance in Account—United Savings & Loan | | 1,140.79 |
| Balance in Account—Omaha National Bank: | | |
| Investments | $400.00 | |
| Cash on Hand | 15.32 | |
| | | $ 415.32 |
| | | $6,617.26 |
| Additions to Investments During Year: | | |
| Represented by: | | |
| Dividend Credit—Union Savings & Loan: | | |
| July 1, 1934 | $16.03 | |
| December 31, 1934 | 16.12 | 32.15 |
| Government Bonds—Omaha Natl. Bank: | | |
| Interest During 1934 | 8.93 | 8.93 |
| | | $6,658.34 |
| Cash Transferred: | | |
| Expense on Called 4th Liberty Bonds Exchanged for U. S. Treasury | $ .38 | |
| Withdrawals: | | |
| Omaha Loan & Bldg. Assn. | $208.84 | |
| Union Loan & Savings Assn. | 181.82 | |
| Standard Savings & Loan | 323.88 | |
| United Savings & Loan | 300.00 | $1,014.54 |
| | | $5,643.42 |
| Total Dividend Credits During Year and Interest | | $ 41.08 |
| Total Amount Transferred to Journal Fund Checking Account | | 1,014.54 |
| Investments on Hand January 1, 1935: | | |
| Balance in Account — Omaha Loan & Bldg. Assn. | | 1,890.78 |
| Balance in Account—Standard Savings & Loan | | 832.83 |
| Balance in Account — Union Loan & Savings Assn. | | 1,655.75 |
| Balance in Account—United Savings & Loan | | 840.19 |
| Balance in Account—Omaha National Bank: | | |
| Investments | $400.00 | |
| Cash on Hand | 23.87 | 423.87 |
| | | $5,643.42 |

## REPORT OF THE COMMITTEE ON CANCER

### OF THE

## NEBRASKA STATE MEDICAL SOCIETY

### TO THE

## STATE COUNCIL

The Committee, through correspondence, and at the meeting held in Lincoln on January 14, 1935, approved of the following recommendations:

I. That during the year of 1935 the Committee center its activities upon disseminating information on cancer to the physicians of the state including, to some extent, dentists, nurses, and hospital executives. This information to be arranged by special committees appointed to summarize the facts concerning malignant diseases of special areas. For instance, a special committee to work on malignancy of bone, another for gastro intestinal tract, etc.

During this time each physician is requested to enclose with his monthly statements some facts on cancer written for the layman.

That this information as agreed upon by the various subcommittees be placed before each county society by having at least one cancer program during the year covering certain minimum known facts concerning cancer in each organ, or system.

II. That after the year of 1935, a program of lay education be carried to the general public under the auspices of the cancer committee, avoiding any references to individuals or institutions; and that during this time information should also be carried as during the previous year to the members of the profession.

III. That they favor the adoption of the report published during the last year of the survey made by the American Society for the Control of Cancer, so that this report may be followed in a general way as a guide by the Cancer Committee. Also, that this report be given publication either as a separate reprint or through the columns of the State Medical Journal.

IV. That some funds for carrying on this work be appropriated for use of the Cancer Committee. This money to be spent only for stationery, stamps, and educational pamphlets; probably $200 would cover the necessary expense. Clerical work involved to be supplied free by the various members of the Committee.

V. That permission to invite the American Society for Control of Cancer to show their exhibit on cancer at the coming annual meeting in May, be given to the Cancer Committee. There is no expense to the society for this exhibit.

The above report is submitted January 14, 1935. Members of the Committee attending the meeting were Doctors Covey, Buis, Willis, and Kelly; absent, Doctor Harvey.

JAMES F. KELLY, Chairman,
Cancer Committee.

## AND THEN THEY SMILED

Professor: "Here you see the skull of a chimpanzee, a very rare specimen. There are only two in the country—one in the national museum and I have the other."

## HIS DILEMMA

Doctor (who is not feeling well himself): What shall I do? I haven't any confidence in any of those doctors, and, as for myself my charges are too high!"

---

At a dinner party one of the guests made the old remark that there is nothing new under the sun. A doctor who was present turned to the woman at his side, "I always think that's such a silly phrase."

"I think it's true," said the woman.

"But, take X-rays," said the doctor. "Why, nowadays, you can see right through a man."

"A clever woman could always do that, doctor."

# The Nebraska State Medical Journal

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Vol. 20 May No. 5

*ANNUAL MEETING*
FONTENELLE HOTEL
***OMAHA***
*MAY 14, 15, 16*

## ANNUAL MEETING

At the annual meeting in Omaha May 14, 15 and 16, every effort will be made to keep the sessions running on schedule time. Each essayist will be given twenty minutes for his paper and twenty minutes only. If he has not finished at the end of the twenty minutes, time will be called and he will not be allowed to proceed. Ten minutes only will be given to total discussion of papers."

The annual dues have been coming in so promptly and in such volume as to give the business office a distinct shock! It looks now as if the annual meeting would show a considerable increase of membership. If perchance any reader has been negligent in paying dues, now is the time to "get into the bandwagon."

The annual meeting promises to be outstanding in talent, in presentation and in attendance. Mark the prediction and be there to see for yourself.

## LAST CALL TO THE ANNUAL MEETING AT OMAHA

For the past several years there has been a growing criticism among the members of the State Medical Association relative to the stereotypy exhibited in the program offered at our annual conventions. As the result of that criticism, the House of Delegates in the session last spring caused a special committee of three to be appointed for the purpose of making our meetings more interesting, entertaining and instructive.

The committee thus appointed has during the past year made an exhaustive study of programs of various types suitable for convention medical meetings. They have accumulated an enormous amount of information and by their frequent meetings and concentrated study have formulated a program for the coming convention which will be all that could be expected for an Annual Convention.

The coming convention to be held this month in Omaha will be the first to inaugurate informal luncheons and dinners open to all registrants for the purpose of informally discussing problems of economic and scientific importance to the profession at large. In the scientific program attention has been particularly directed to diversifying the scope of the program, allotting suitable proportionate time to the branches of Surgery, Medicine, Obstetrics, Orthopedics, Pediatrics, Oto-Larynology, as well as to the various newer diagnostic and therapeutic agencies now in use. To provide for such diversity, it has been necessary that all essayists be strictly limited to twenty minutes each, and that the total discussion be limited to ten minutes each, allowing each individual subject thirty minutes on the program. This schedule will be strictly adhered to.

The only exceptions to the above rule apply to guest speakers who are to be given thirty minutes each, and for obvious reasons, no discussion will be made in the general sessions of guest speaker essayists. The program committee, working in conjunction with the entertainment committee, have correlated the program in general so that those in attendance may be afforded proper time for the fulfillment of all phases offered in any given convention, namely, scientific study, entertainment and good fellowship.

It is indisputably true that the added attractions plus the added scope of the program and the new innovations to be included therein will no doubt attract a much larger attendance than has ever before been experienced.

We would be direlict in our duties if we failed to recognize the able efforts of the program committee and of its individual members who have devoted so much time and effort to the making of this new program, which we are looking forward to be an outstanding one in the history of the Association. Special mention should be made here of the personnel of that committee which includes Drs. Morris Nielsen, John Duncan, J. D. McCarthy, Roy Whittham, and our untiring secretary, Dr. Roy Adams.

The type of pamphlet program mailed to the profession will be changed somewhat, which will give a more detailed and comprehensive discussion of the anticipated activities of the convention. The program will be in the hands of each individual member within a few days.

As your President-Elect, I urge each and every member to reserve the days of Tuesday, Wednesday, and Thursday, May 14th, 15th, 16th, for attendance at every session of our Annual Contion to be held in Omaha, and to enter whole heartedly into each activity, which will most assuredly repay manifold benefits to all concerned.

—Claude A. Selby, for the
Program Committee.

## AGED, INDIGENT PHYSICIANS' APPEAL TO OUR SYMPATHIES

The aged, indigent always appeal to our humanitarianism. When the aged, indigent is a brother physician the appeal comes a bit closer and when the aged, indigent is an honored member of the Nebraska State Medical Association, the appeal pulls at the heart strings.

At this very time a former president of the Nebraska State Medical Association, now an honorary member, with a wife, is on FERA relief. Does it not make you shiver to think of it? Suppose it were you come to the later years and through no fault of your own you found yourself in such straights—what would your reflections be? The person here referred to—deaf and almost blind—shall be nameless in this *Journal* and he personally asks for nothing from the profession; but is it not a duty we owe as members of an honorable profession to take a "pass the hat around" collection to assist in a small manner to lighten the cares of this aged couple?

The editor of this *Journal* will thankfully receive, as intermediary and carefully portion out to this worthy pair from time to time any contributions forwarded to him at Madison, Nebr. No large amounts are solicited: five dollar bills thankfully received and dollar bills will help a lot.

"Lives there a man with soul so dead" that he can pass this appeal by on the other side?

### A PENSION FUND FOR INDIGENT PHYSICIANS?

At different times and in a number of states efforts have been made to provide organizational care of aged, indigent physicians. A scheme not wholly unlike the much discussed Townsend plan has been suggested to retire physicians on a pension after the age of sixty-five years. The creation of a pension fund against old age indigency after the system of the postal service and of the Carnegie Teachers' Pension system, the employee or prospective participant paying so much monthly through a period of years for a retirement pension at sixty or sixty-five has been discussed.

Homes for aged physicians have been proposed and one such is under consideration now where for a few thousand dollars one may buy a home and support for declining years for a fixed sum.

The Medical Society of the State of Pennsylvania inaugurated a Medical Benevolence Fund in 1905 that works. Two years ago this fund approximated $110,000, the earnings whereof only is available for relief. This fund was created by the Society appropriating annually a sum not to exceed one dollar per member to the fund. Voluntary contributions are received as also are bequests. The Woman's Auxiliary has within recent years annually contributed handsomely to the fund—what worthier object could any Women's Auxiliary have?

A cursary survey of the matter in this state leads the writer to the conclusion that there is no pressing need for organized effort toward providing a relief fund for aged, indigent physicians at this time; but that when isolated cases arise as the one above referred to, the situation can be met by voluntary contributions through some intermediary connected with our organization.

## IMMUNIZE NOW!

The American Child Health Association has adopted for its May Day celebration the slogan, "Immunize Now!"

About five thousand children died of diphtheria in the United States last year. Five thousand unnecessary deaths, in view of our present knowledge of diphtheria prevention.

A baby up to about six months of age has in most cases a natural immunity which he inherits from his mother. After the natural immunity wears off, and up to about three years of age, practically every child is susceptible to diphtheria. This, then, is the period of greatest danger, though cases are frequent up to fifteen years of age. After that, the number of cases drops off sharply. In the twelve years from 1920 to 1932, the deaths from diphtheria in the United States dropped from 15 for every 100,000 population to 4.5. This was a remarkable record. Yet, though diphtheria may be vanishing, it has not vanished, and will not vanish without continued effort on our part. Where interest dies down, where parents grow careless about seeking protection for their children, diphtheria creeps up again. Though there are states and cities where the disease has become very rare, there are other states and cities where the trend is in the wrong direction; where the deaths, according to the latest reliable figures, are increasing rather than decreasing.

For this reason, the stamping out of diphtheria has been chosen as the special project for May Day-Child Health Day this year. Its success depends on a joint effort—of public health officials, private physicians, and parents. Given this community spirit, there is no reason why the goal of "no deaths from diphtheria" should not be attained. It has been attained already in certain localities. The diphtheria ward of the Alexandra Hospital in Montreal for example has closed its doors because there are not enough patients to warrant its remaining open. To turn to our own country, there were two cities of over 50,000 inhabitants in the state of New York which did not have a single case of diphtheria in 1934, as well as three cities of between 25,000 and 50,000 inhabitants, and 36 smaller cities. This is proof enough that diphtheria can be stamped out.

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## THE KANSAS CITY SECTIONAL MEETING OF AMERICAN COLLEGE OF SURGEONS

The sectional meeting of the American College of Surgeons, embracing the states of Missouri, Kansas, Arkansas, Iowa, Nebraska, Oklahoma, Colorado and Texas was held at Kansas City, Missouri, on March 12th and 13th, 1935.

The attendance was surprisingly good, as over seven hundred registered at the Meeting. Thirty-seven of these surgeons were from Nebraska. In general, the type of meeting was similar to the National Clinical Congress of this organization is that daily clinics by the local surgeons were held in various hospitals and all the specialties represented. The usual hospital conferences were held at the President Hotel, which was conducted by Mr. Robert Jolley of Houston, Texas, and Dr. Malcolm T. McEachern, Associate-Director of the College. These meetings were very well attended and had to do chiefly with administrative and economic problems confronting hospital organizations. Hospital insurance plans received considerable attention and may be the solution to adequate hospital care for the ordinary working man and his family. Several sound pictures were shown, and of particular interest was one on diaphragmatic hernia.

The scientific meeting on Tuesday evening was very well attended, and a variety of subjects discussed by outstanding men in their particular field. On the same evening the eye, ear, nose and throat group held a separate meeting.

In the opinion of the writer, one of the outstanding activities of the College of Surgeons at this time is the development of Regional Fracture Committees for the purpose of teaching and improving first aid care of the injured and standardization of the methods of fracture treatment. A meeting of representatives from all eight states was in charge of Dr. Frederick W. Bancroft, Associate-Professor of Clinical Surgery, Columbia University, College of Physicians and Surgeons, New York City, who heads the Fracture Committee. Dr. Charles L. Scudder of Boston, who is in charge of the State Regional Committees and who has been largely instrumental in the development of this work, also had a very active part in the discussion and selection of the Committees for the various states.

The usual Community Health Meeting was held on the last evening of the two-day session, and apparently proved popular, as it was necessary for the speakers to appear at two different auditoriums in order that the crowd might be accommodated.

Considerable inconvenience usually develops in a clinical meeting involving several hospitals with the attending staffs holding clinics at the same time. As a general rule, only the outstanding men attract the crowd and many of the smaller, but just as worth while programs, go entirely unattended. It seems that the more successful meetings are those in which all activities center around one place with a well balanced, scientific program. This is especially true when an attendance greater than two hundred must be accommodated.

—**Herman F. Johnson, Omaha.**

## A PRESIDENT COMES OUT OF THE WEST—DR. CLAUDE A. SELBY

Claude A. Selby was born in Petersburg, Pike county, Indiana, August 25, 1888, and moved with his parents to Logan county, Nebr., in the winter of 1892 where for some years they lived on a farm.

DR. CLAUDE A. SELBY

He was graduated from the North Platte high school in 1907 and after working for a time in his father's store in North Platte, took up the study of Medicine in the University of Illinois and received his medical degree from the Chicago College of Medicine and Surgery in 1915. In his Senior year in Medical School he served as an interne in St. Elizabeth Hospital, Chicago. In October 1915 he passed the civil service examination as a school Tuberculosis Physician on the Chicago Health Department, located on the northwest side of Chicago in January 1916 where in addition to Health Department work he began private practice, continuing in that location until March 1917 when he returned to Nebraska to enter the Medical Corps of the United States Army, and was commissioned a first lieutenant in the Medical Corps of the Nebraska National Guard and was assigned to the First Nebraska Field Hospital, aiding in recruiting, training and equipping that organization for war service.

The Nebraska Field Hospital was federalized in July 1917 and made Field Hospital No. 166, a part of the 42nd, or Rainbow Division, with which Doctor Selby sailed for France, Sept. 18th, 1917, and first saw action in the war with that division in February 1918.

April 21st, 1918, he was transferred to the 168th Ambulance Co., a Detroit unit of the Rainbow Division, with which Doçtor Selby saw active front line service for the remainder of the World war, participating in the actions of the Luneville and Baccarat sectors, the Champaigne-Marne, Aisne-Marne. St. Mihiel and Meuse-Argonne, first and second offensive actions, also was in the Army of Occupation on the Rhine; was promoted Sept. 16th, 1918, to the rank of captain and was discharged from the service at Camp Dodge on May 24th, 1919, immediately thereafter locating in North Platte, where he is now practicing.

Doctor Selby was married September 23, 1915, to Miss Mabel Duke of North Platte, a high school classmate. They have four children.

Doctor Selby's activities in the Nebraska State Medical Association began in November, 1921, when he was appointed by the late Dr. B. B. Davis, then President-Elect of the Association, to act as Councilor of the Eleventh District, filling a vacancy.

He has since then been one of the leading members of that body, a indefatigable servant of organized medicine and of the Nebraska State Medical Association.

Doctor Selby organized the West Nebraska Clinical Assembly in 1932. He is associate chief of staff of the new St. Mary's hospital in North Platte. He is district surgeon of the Union Pacific railroad. He has always taken an active interest in the civic affairs of the community and is a member of the board of education, has been city physician of North Platte. He is past commander of the local American Legion post.

His accession to the presidency of the Nebraska State Medical Association, portends a vigorous administration.

---

### THE OLD SILVER SPOON

How fresh to my mind are the days of my sickness.
When I tossed me in pain, all fevered and sore;
The burning, the nausea, the sinking and weakness,
And e'en the old spoon that my medicine bore.
The old silver spoon, the family spoon,
The sick-chamber spoon that my medicine bore.

How loath were my fever-parched lips to receive it,
How nauseous the stuff that it bore to my tongue;
And the pain in my innards, oh, naught could relieve it,
Though tears of disgust from my eyeballs it wrung.
The old silver spoon, the medicine spoon,
How awful the stuff that it left on my tongue.

## MOTHER'S DAY

May 12th has been designated as Mother's Day and will bring the customary tributes to mothers throughout the land. It should also be an annual incentive for all of us to redouble our efforts in helping save the lives of the women who die every year in childbirth; some 16,000.

The Maternity Center Association of New York City, groups of men and women every where are making preparations for a campaign to teach the public how to make maternity safe by bringing adequate care to the mothers of this country.

Local groups planning to use Mother's Day to focus attention on the need for better maternity care may obtain suggestions from the Maternity Center Association, No. 1 East 57th St., N. Y. City.

The public must be told what makes up adequate maternity care before they will be conscious of the importance of it or willing to pay the cost of it. There are no more tragic deaths than of mothers in childbirth and we feel sure that, if it were understood by the people of the United States that these deaths are largely preventable, they would be prevented. Women receiving adequate prenatal care have three times as good a chance to survive as mothers not receiving such care. This implies, a properly educated laity who will seek and accept such attention, and personnel who are not only educated but also trained and experienced in administering it.

The causes of death and disability are quite well known. It is impossible to eliminate all maternal deaths. We know enough to prevent many of these fatalities. It is not so much the lack of knowledge as the failure to apply it generally which is responsible for the persistently high maternal mortality rates.

To illustrate, the recent report of the maternal mortality study conducted by the Children's Bureau analyzed 7,380 maternal deaths. Over 5,600 of these women might have received prenatal care, but 54% had no prenatal medical examination or care. Less than 1% received adequate care, 13% had good prenatal care and over 75% had poor, indifferent, or no attention. These figures should be quite sufficient argument for the need of educating the prospective mothers to see their physician as soon as they become pregnant. It is found that most tragedies occur in women who were not under medical supervision during the period of the child's development.

The greatest single cause of maternal mortality is puerperal sepsis, which accounted for 40% of the 7,380 deaths. Many of these cases can be prevented when it is remembered that the eleven most frequent causes for infection are the physician's ten fingers and his nose and throat.

Toxemia is the second most frequent cause of maternal mortality. This is the chief or principal contributory cause of death in 30% of these women—proper ante-natal supervision can prevent many of these toxemias. 26% of these deaths are due to puerperal albuminuria and convulsions and over one-third of these women were not seen by a physician prior to death—or were in convulsions or coma when first seen. The proverbial ounce of prevention in these cases is far the best treatment and the onus for this state of affairs cannot be placed on the physician's shoulders.

Probably the most outstanding finding of this study is that one-fourth of all maternal deaths followed abortion. It is not at all improbable that there are at least from 750,000 to 1,000,000 abortions in the United States each year. It is certain that maternal deaths from the intentional abortions have tended to neutralize the decreased number of maternal deaths which have resulted from improved obstetric practice. As 1,825 deaths followed abortion out of a total of 7,380 deaths in this series, abortion is evidently one of the greatest factors in increasing the maternal mortality in this country. The physician has one great obligation—to teach the public the dangers entailed by abortion, whether spontaneous or induced. The physician should likewise learn that in the management of these abortions, fever is a contraindication for curettage. This study showed that the practice of curetting every patient who had an abortion is common, yet in those cases in which it was known that fever existed and curettage was done, 94% of the deaths were due to sepsis.

Physicians must assume leadership in the field of maternal care by informing the public.

1. That the medical profession knows how to prevent many of these factors contributing to a high maternal mortality if the patient would avail themselves of what medical science can offer. In spite of nationwide campaigns to encourage expectant mothers to seek proper medical care as soon as they know of their condition it has been found that 54% of 7,380 women who died in 15 states received no prenatal care. The condition precedent to improvement is an informed public demanding adequate maternity

care, and we should instruct the public as to what constitutes adequate maternal care.

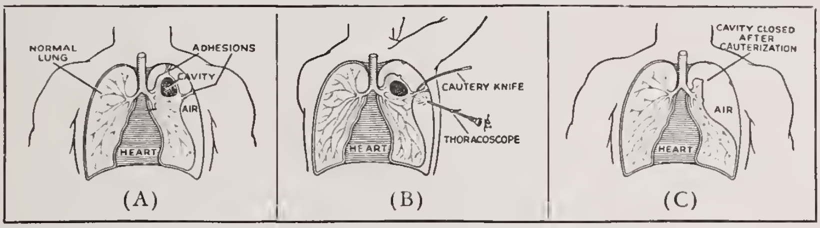
2. The public must be warned as to the dangers occasioned by abortions, spontaneous or induced. Deaths following abortion greatly increase the maternal mortality rate in this country.

3. If remuneration for obstetric work were given for quality and quantity of ante-natal and post-natal services, the death and morbidity rates would promptly improve. Communities will have to organize the available resources so that every mother can receive adequate maternal care.

As physicians we should take Mother's Day as an occasion to draw attention to the fact that 10,000 of the 16,000 mothers who die each year from childbirth causes need not die, if the community will see that they are provided with adequate maternity care.

—Earl C. Sage, Omaha.

## WHEN LIFE LITERALLY HANGS BY A THREAD



HOW SURGERY HELPS CURE TUBERCULOSIS

Pneumothorax is produced by allowing air under very slight pressure to enter the pleural cavity (the space between the lung and chest wall). This compresses the lung and puts it at rest, which tends to arrest the progress of the disease. Sometimes complete collapse is prevented because of adhesions due to pleurisy which tie the lung to the chest wall. A method of cutting these adhesions is here shown.
A.—The patient's left lung contains a cavity caused by tuberculosis. Collapse of the diseased lung is prevented because of adhesions.
B.—The surgeon, using a local anesthetic, inserts an electrically lighted "thoracoscope" through which he can see into the pleural cavity and locates the adhesions. He next inserts a hollow tube near the adhesions, slides a cautery (electric knife) through the tube and severs them.
C.—The adhesions are severed and the lung is collapsed. The cavity is closed, preventing the disease process from continuing.

Rest in bed, good food, fresh air, light and sunshine, faithfully employed, will win the battle in many cases of tuberculosis. The nature and extent of the disease in the lungs, however, may be such as to demand additional curative measures. The need for them can be determined only after careful diagnostic study and close observation of the patient. Equipment for carrying out these studies is to be found in every well ordered sanatorium. Here are the necessary diagnostic facilities and here may be made the detailed observation that is so important in many cases by the highly trained personnel of such an institution.

Among the modern methods employed to aid nature to heal a diseased lung, artificial pneumothorax is the treatment most widely used. By this method the diseased area in the lung is wholly or partially collapsed by introducing air between the lung and the chest wall through a small hollow needle. The lung, with its smooth membranous covering, yields to the gentle pressure, the inflamed areas are compressed, cavities are closed and their walls are brought together in such a way as to favor healing. Thus we find an inflamed lung, previously agitated by every breath, serenely pillowed on a cushion of air, awaiting nature's magic art.

In some cases the inflammation in the lung extends to its smooth membranous outer covering and causes it to become attached to the inner surface of the chest wall. Such attachments are known as "adhesions." If adhesions are widespread, the introduction of air may be impossible. If they are limited to small areas, they may gradually yield to the continued pressure of the air that is being introduced and take on the form of membranous strings or bands. If such a case is x-rayed, the string or band-like adhesions may be seen stretching across the air space. These adhesions interfere with the collapse of the lung and prevent the closure of cavities. Obviously this interference must be overcome. Fortunately for the patient, the adhesions may be successfully severed by means of an ingenious surgical procedure known as intra-pleural pneumolysis.

Under local anesthesia, a hollow tube the size of a small lead pencil is introduced between the ribs. Through this hollow tube the surgeon introduces the thoracoscope. This is a small hollow instrument equipped with a tiny electric light and mirrors, and is in effect a periscope through which he can explore every portion of the air space surrounding the lung. When the adhesions are located and found to be favorable for operation, the surgeon introduces at a chosen point a second hollow tube through which he passes an electric cautery. This is deftly manipulated under indirect vision until its blade is poised immediately above the adhesion at a point chosen for cauterization. The electric current is then turned on and the adhesion is burned through.

Thus modern surgery, with a magic wand, literally saves lives that hang by a thread.

—Lewis J. Moorman, for
National Tuberculosis Association.

## LINCOLN GENERAL CELEBRATION AND CLINICS

It has become a nice custom for hospitals to have anniversary clinics. Last month the Lincoln General hospital celebrated its tenth anniversary with a two day clinic program featuring some of the outstanding medical and surgical talent in the United States.

Luncheons were tendered the visiting physicians of whom there were above 250 and a banquet was given the first evening. Informal talks on medical economics were given at the luncheons and Hospital progress was discussed at the dinner.

Dr. John H. Musser, New Orleans, Professor of Medicine in the Tulane University School of Medicine and head of the Department of Medicine; past president of the American College of Physicians and former vice president of the American Medical Association; editor of the *New Orleans Medical and Surgical Journal* and former editor of the *American Journal of Medical Business,* member of the editorial board of the *Archives of Internal Medicine* and of the Council on Medical Education and Hospitals of the A. M. A., held medical clinics both days.

Dr. Fred H. Albee, New York City, professor of Orthopedic Surgery, New York Post-Graduate Medical School; Founding Fellow and Governor of the American College of Surgeons; internationally recognized for his work in bone surgery, an important part of which was the invention of an electrically driven bone mill by which automatic power driven machine tools were first applied to the molding of the bone at the surgical operating table; who has been honored by medical societies and governments of many nations for his original work in surgery; spoke on the "Bone Transplant in Bone Surgery" and also on "Surgery of the Joints," as only Albee can.

G. Failla, D. Sc., New York City, Director of Research, Memorial Hospital for the Treatment of Cancer and Allied Diseases; awarded Leonard Prize of American Roentgen Ray Society in 1923 and 1925; developed "gold seeds" for the interstitial radiation treatment of tumors; developed first fully protected radium pack for external treatment of deep-seated tumors; developed vacuum tube device for measuring x-rays and radium; developed numerous devices for handling radium emanation safely, now used as standard equipment in many clinics, spoke on "Physical and Biological Characteristics of 700 K. V. X-ray" and later on "Treatment by 700 K. V. Radiation."

Dr. N. Sproat Heaney, Chicago, Ill., clinical professor of Obstetrics and Gynecology, Rush Medical College, University of Chicago; chief Attending Obstetrician and Gynecologist at Presbyterian Hospital, Chicago, spoke on "Vaginal Hysterectomy," illustrated with motion pictures, and on "Some Obstetric Pointers."

## ACCOMPANY AMERICAN DELEGATION TO INTERNATIONAL PHYSIOLOGICAL CONGRESS

It is estimated that between 200 and 300 medical men and scientists from the United States will attend the Fifteenth International Physiological Congress meeting in Leningrad and Moscow, August 8 to 18. A short, inexpensive tour, closely packed with interest, has been officially arranged. Reservations for the tour and for attendance at the Congress may be made through your state *Journal* for the groups sailing on the SS. "Laconia" July 19 and on the SS. "Berengaria" on July 25. Both groups will stop over in London and will have the opportunity, also, of attending there the Neurological Congress of July 29, 30, and 31.

A folder describing the expedition will be sent upon request. The present organization of state medicine in Russia is already a matter of worldwide interest to medical men and the tour should be a popular one. Dr. James S. McLester, President-elect of the A. M. A., Prof. A. J. Carlson, Head of the Department of Physiology at the University of Chicago, and Dr. George Halperin, of the *Journal of the American Medical Association,* will accompany these groups to the Congress.

The physicians attending will be registered oficially as members of the Physiological Congress nd will enjoy all the privileges of such appointment. The Intourist has made sensational conessions in matters of price and doctors' families nay accompany them on the same terms. The cientific features of the tour will include visits o hospitals, research institutions, clinics, chilren's homes, and homes for workers. In addiion there will be trips to museums, art galleries, heatres, and many typical new educational and ultural establishments.

From Moscow the delegations will proceed outh to Yalta, the heart of the Crimea, visiting everal great collective farms enroute. A trip y boat along the coast of the Black Sea—the Russian Riviera—will afford the opportunity of viewing some of the most scenic spots in all Europe. The return trip will take the visitors through Warsaw, Berlin, and Paris.

Register through your state *Journal*, Center McKinley Bldg., Lincoln, Nebr. It will be to our advantage as well as yours.

## MEDICO-LEGAL

### POST-OPERATIVE HEATSTROKE

Heatstroke and heat-exhaustion are well recognized clinical conditions, examples of which will be encountered during the coming months. Post-operative heatstroke, although a definite entity and an extra hazard for operations during excessively hot weather, is not well recognized. The condition was first reported by Gibson(1) in New York in 1900. Moschowitz(2), in reviewing the literature, from 1900-16, found only seven cases and added five of his own. A more recent report from Missouri by Martin(3) lists four cases, with two autopsies.

Cases of post-operative heastroke are usually encountered during a severe heat wave. The effects of heat are due here, as in sunstroke and heat-exhaustion, to the prolonged effects of heat with excessive sweating over many days, and are not simply the result of great heat on the day of operation.

The usual clinical picture is a sharp rise of temperature within a few to 24 hours after a minor or major operation. A low fever may have been present before operation. The fever continues to mount, reaching 105° F. and even 109° F. Convulsions, coma, delirium, and circulatory failure intervene and death follows rapidly. Physical findings are inconstant. In most reported cases a general anesthetic was used.

At autopsy only congestion of the viscera and acute hypostatic bronchopneumonia are found. During the past few years we have encountered several cases of post-operative heatstroke. A brief abstract of one such case will exemplify the points I have mentioned:

R 1871. A 19-year-old boy was admitted to hospital July 16, 1934, for correction of a hydrocele. He vomited once the night before operation. On the morning of operation sodium amytal produced hypnosis and a small amount of ether produced complete anesthesia. The hydrocele sac was resected, the operation requiring about 15 minutes. At 2:00 p. m., when the temperature was first taken after operation, it was 104° F. Two hours later the boy was comatose. In spite of ice packs and sponging the temperature continued to mount, reaching 107° F. by axilla at 9:00 p. m., shortly before death.

Autopsy revealed only acute hypostatic bronchopneumonia and slight cerebral edema.

We should not only be on the alert for postoperative heastroke, but for possible heat prostration. Possibly many cases of so-called post-operative shock in severe hot weather may be examples of post-operative heat-exhaustion.

—B. Carl Russum, Omaha.

### BIBLIOGRAPHY

1. Gibson, Medical News, 77:883. Dec. 8, 1900.
2. Moschowitz, A. V.: Post-Operative Heatstroke, Surg. Gyn. & Obs. 23:443 (1916).
3. Martin, T. M.: J. Miss. State Med. 25:305 (1928).

## THE NEW ADVERTISERS

New advertising is coming in to encourage the *Journal* publication board. St. Bernard's Hospital, Council Bluffs; The Larsen Company of Green Bay, Wisconsin; The American Can Co.; The F. A. Ritter Co.; The Swift Lumber and Fuel Co. (a cooling system); The Banker's Life of Nebraska; Gold stores.

From Omaha, incidental to the annual meeting, are a number of advertisers, whose names we did not have at hand on going to press.

It is fine for the *Journal* to have these ads, all of which are predicated on the possibilities of establishing trade relations with the medical profession and their families. These people expect business from the doctors or their families in return for their money invested in ads and they should have it. We must take a broad view and show by our patronage that we appreciate their advertising in our *Journal*. This is real reciprocity.

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Patient—Doctor, I've just received your bill for that operation. Could you take anything off for cash?

Doctor—Yes, anything—What would you like to have taken off, an arm or a leg, or what?

The program which followed was under the auspices of the Pediatric group. Dr. J. Harry Murphy opened the program with the presentation of a film showing what is being done in child health work in Omaha to combat tuberculosis. The film illustrated methods of testing for tuberculosis, the evolution of the disease, the importance of recurrent examinations, the activity of health camps, etc. In the discussion which followed Dr. Harley Hotz, Dr. Clyde Moore and Dr. John F. Allen took part.

Dr. H. B. Hamilton spoke on "Anorexia in Children" after which Dr. Clyde Moore and Dr. Clarke took part in the discussion.

Dr. Floyd Clarke closed the program with a talk on "Nephritis in Children." Dr. Jahr, Dr. Hamilton and Dr. Cameron joined in the discussion.

The March meeting of the **Madison Six County Medical Society** was held at Norfolk March 19, with a dinner served by the Catholic ladies in the church basement. The program follows: Dr. W. L. Sucha, Omaha—"The Immediate Management of Compound Fractures;" Dr. F. P. Murphy, Omaha—"Occiput-Posterior Presentation."

Sixty-two members had paid their dues at the time of the meeting.

The April meeting of the **Madison Six County Medical Society** was held at Creighton on the 16th and turned out to be one of the best attended and most practical meetings in recent times. Seventy-seven physicians and their ladies attended the dinner given in the city hall and also attended the program.

The speakers: Dr. Herman Johnson, Omaha—"Indications for Open Reduction in Simple Fractures and Dislocations;" Dr. Warren Thompson, Omaha—"Management of Heart Disease;" Dr. J. A. Hohf, Yankton—"Headaches in General Practice;" Dr. G. G. Bicknell, Yankton—"Dental X-Ray—Slides."

The Spring meeting of the **Third Councilor District Medical Society** was held at Falls City, April 18, with the following interesting program: "Tetanus--Case Report," Chas. Ziegeler, M. D., Vesta; "Serum Proteins in Nephrosis," E. M. Barnes, M. D., Veterans Hospital, Lincoln; "Symposium on the Anemias," J. P. Tollman, M. D., Associate Professor of Clinical Pathology; A. R. McIntyre, M. D., Associate Professor of Physiology and Pharmacology; H. B. Hamilton, M. D., Professor of Pediatrics; J. B. Potts, M. D., Associate Professor of Otorhinolaryngology, University of Nebraska, Omaha; "My Impression of the Hospitals and Practice of Medicine as I Saw Them in Japan, China and the Philippines," A. C. Stokes, M. D., Omaha.

It was an afternoon and evening program. A dinner was served. The program was arranged with special reference to the general practitioner remote from centers of medical education. As such it was appreciated as shown by the large attendance at the meeting.

A joint meeting of the **Platte County Medical and Dental Societies** was held at the Thurston Hotel, Columbus, following a dinner. About thirty-five were present.

Dr. George W. Covey, Lincoln, spoke on focal infections with special reference to dental infections. He covered the subject quite thoroughly.

Dr. F. W. Webster, Lincoln, professor in the Nebraska University Dental School, spoke on malignancies, tumors and cysts of the jaws. His talk was accompanied by the presentation of about two dozen beautiful models of abnormal conditions found in the jaws.

The audience listened with rapt attention to the presentations.

**The Dawson County Medical Society** met at the Cornland hotel, Lexington, after a dinner, April 1. Dr. Floyd Fochtman, Cozad, spoke on "Recent Advances in Medicine and Surgery."

The **Southwestern Nebraska Medical Society** held its monthly meeting in McCook April 11, at which time Dr. Arthur E. Hertzler of Halstead, Kansas, gave a talk on "Gastro-Duodenal Ulcers, Pathogenesis and Treatment." Dr. George Westphal of the Hertzler Clinic at Halstead also gave a talk on "Gastro-enterology." About sixty doctors were in attendance.

The annual meeting of the American Association for the Study of Goiter will be held in Salt Lake City, Utah, June 24th, 25th, and 26th.

## HUMAN INTEREST TALES

Lexington physicians are talking new hospital.

Dr. D. O. Hughes, Fairbury, is doing postgraduate work in Chicago.

Dr. K. L. McShane has located at Kimball. He comes from Cheyenne.

Dr. Robert Donley, late of Blair, has taken a position in the Army Medical Corps.

Dr. Robert Underwood, Lincoln, suffered from a severe infection focalized the arm, recently.

A pre-school clinic marking Negro Health Week was given in Omaha the first week in April.

Dr. J. M. Erman, Omaha, spoke before Omaha Philosophical Society on Medical History, April 7th.

Dr. Charles G. McMahon, Superior, attended a Surgeon's meeting at Minneapolis, the latter part of March.

Dr. George M. Hansen, for about nine years in practice at Madison, has located in his home town, South Omaha.

Dr. H. H. Stretton, for some time connected with the State Hospital at Ingleside, has moved to Fayetteville, Ark.

A group of physicians from Omaha and Fremont participated in a birthday celebration for Dr. F. W. McCaw, Colon, last month.

Dr. A. A. Enos, Interne University hospital, has leased the offices of the late Dr. E. E. Boyd, Central City, and will locate there.

Dr. R. E. Bray, for years at Martinsburg, has located at Ponca, after a short period at Norfolk in association with Dr. G. A. Young.

Dr. Charles H. Arnold, Lincoln, spoke on "Choice of Anaesthesia" before the Black Hawk County Medical society, Waterloo, Iowa, April 18.

"Physical Changes in the Development of Women" was discussed by Dr. Palmer Findley, Omaha, before the Urban League-Community Center, April 4th.

Dr. Charles E. Gurney, Omaha, has accepted a fellowship at the Mayo Clinic for the next three years.

## BOOKS RECEIVED

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES for the fiscal year 1934. Government Printing Office, Washington. Cloth, Octavo, 143 pages.

HUGHES' PRACTICE OF MEDICINE revised and edited by Burgess Gordon, M. D., Associate Professor of Medicine, Jefferson Medical College; Director, Department of Diseases of the Chest, Jefferson Hospital; Assistant Physician, Pennsylvania Hospital; Visiting Physician, White Haven Sanitarium, etc., With Sections on Mental and Nervous Diseases by Harold D. Palmer, M. D., and on Diseases of the Skin by Vaughn C. Garner, M. D. Fifteenth Edition, with Sixty-one Illustrations, 800 pages. P. Blakiston's Sons and Co., Philadelphia.

p. 199
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# THE NEBRASKA STATE MEDICAL JOURNAL

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## THE PURPOSES OF OUR ASSOCIATION*

CLAUDE A. SELBY, M. D.,
President, Nebraska State Medical Association,
North Platte, Nebr.

Tradition has ordained that the incoming pres-
:nt of the Nebraska State Medical Association
given the honor of delivering an address at
· Annual Convention of his inaugural. During
· past sixty-seven years since the founding of
s association have appeared, in the capacity in
ich you now observe me, men of national and
n international reputation; men who have held
ir audiences spellbound either by their elo-
ence or masterly and learned excursions into
ojects relating to scientific medicine, history of
dicine, economic subjects relating to medicine,
its allied sciences.

The importance of regenerating the social structure of our organization and at the same time enlarging our scientific effort is a program far more justifiable than adherence to tradition.

Because we are ever increasingly confronted with the necessity of rendering the association more valuable to each of its constituent members and to society, it seems most apropos that a frank discussion of such paramount issues could not be amiss even in such a gathering as this.

No panacea is herewith offered, and perhaps no theories new to the annals of our organization may be advanced, but the fact remains that until we recognize the things constantly within our

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*Presidential Address given before the annual meeting, Ne-
ka State Medical Association, May 15, 1935.

grasp, make use of the faculties at our disposal, supply to ourselves the financial impetus necessary to good business, in the association, we are most assuredly doomed to inertness and impotence as regards the basic principles of advancement upon which this association was conceived.

That for more than a decade we have failed to increase our membership in ratio with the eligible practitioners in Nebraska is a most significant fact, demanding the closest scrutiny of ourselves, and a comprehensive study to rejuvenate interest and recreate an individual sense of duty and loyalty to the profession at large.

In the past it has seemed wise that the State Medical Association should stand aloof from entering the political fabric of the state, striving only for leadership in medical thought rather than in organization, yet questions of vital economic importance are arising today both in medicine and in the body politic which are forcing upon us the necessity for rational leadership in their solution. Having found us loosely organized and inert by the lack of interest in the commonplace things so necessary to an organization with a solidarity of purpose, we find ourselves politically supplanted by well trained, exceedingly active and often misdirected, publicity seeking lay groups which have sprung up within the past ten years, who seek to solve the problems of economic distress purported to emanate from a "high cost of medical care;" groups that attempt to enlist the aid of governmental agencies and legislative bodies to subjugate the practice of medicine to divers plans of regulation and paternalism.

Would it not then be well for the members of this Association to answer the call to action and give concertedly and collectively of time and effort to the solution of these problems and to curtail the harmful effects of false premise? Not concerted efforts of solely obstructive nature, but by serious conservative, well planned rational unified action, upon which to build progressively, open mindedly and stably, admitting our shortcomings, but setting our house in order to correct them.

The nature of the medical man is such that he is oblivious to the necessity of providing his organization with sufficient money to permit it to accomplish for him all the potentialities possessed of it. Though long proclaimed as an essential to this Association's success is the procuring of a competent full time paid secretary, or coördinator if you prefer. We are not yet supplied with such an individual in possession of the essential qualities of leadership, who will devote his entire time manifold problems of the profession, its organization and its relation to the public, whose duties shall be only partly secretarial in character, but shall be to foster and build the foundation of organization under the guidance and the direction of the Association's officers, to the end that we may keep economically independent of the chaos of state medicine and elevate our economic status to the same high plane of recognition in which our scientific achievements have placed us. To promote the permanent abandonment of our previously prevalent penuriousness: the giving of a few dollars additional yearly per capita will accomplish this dire need and should be espoused by every member of this organization and should occupy the immediate undivided attention of our Council and Delegates, so that this, the dream of the past, becames the reality of today.

Since the time of Hippocrates the continuous excursion into the realms of the unknown has stimulated interest in the study of medicine; has opened up new fields of investigation; has provided new conceptions, and new evaluations of concepts; has caused us to discard beliefs once held as irrevocable facts, enabling us to utilize the knowledge as it is acquired; thus we find ourselves followers of such rugged individualists as Pasteur, Jenner, Lister, Metchnikoff, Ehrlich and Koch; and during more recent years such men as Noguchi, Banting and Dick, also hundreds, yes thousands, of others whose praises are yet unsung and of whom Nebraska has, and will have, supplied its quota.

As a group we are confronted with the problem of how best to accomplish the laudable ambition of the advancement of medical science through our state organization. After giving it consideration, we find our meetings being displaced with various clinical assemblies, which, if carried on too extensively, tend to disorganize and supplant the basic organization of medicine; namely, the State Medical Association and its component societies. Such conditions in turn tend to render deleterious reactions to the effectiveness of the American Medical Association.

The extension of medical knowledge to the practitioner can best be disseminated throughout the profession by reasonably frequent and well planned medical meetings at which may be enjoyed good fellowship with free interchange of views, experiences and expositions given to the findings of research. It is natural to assume then that the beginning of such scientific dissemination must arise in the county medical society at its regular meetings and reach its zenith at the annual assembly of the State Medical Association.

It therefore is incumbent upon us to see that the afore-mentioned basic organization supersedes all others by providing ample time, money and endeavor to build programs of scientific nature that will satisfy the most fastidious. This can only be done by extending the scope of the scientific sessions to include adequately prepared and well coordinated discussions relating to all phases of medicine.

This association should awaken to the crying need of this important phase of our existence and set out to recapture the wayward scientific member whose interest and enthusiasm may have long since waned, and whose value to us and to humanity may be greatly enhanced if returned to the portals of organized medicine that it may be an outlet for his inspirations and achievements in behalf of the comfort and welfare of mankind.

It is reasonable to presume that a proper vehicle should be maintained through which correct and accurate knowledge relating to medicine, public health, and related subjects may be properly and advisedly disseminated to the enlightenment of the public.

No more efficient local group for such a purpose could be possibly conceived than a properly functioning county medical society, and no more stable and dependable vehicle for the entire state's health program could be established than through a properly functioning state medical association, and furthermore, no better potentially equipped national organization could be conceived for all matters pertaining to health and public welfare than the American Medical Association. Were we charged with such a rightfully placed responsibility, were its rational application brought to pass, once and for all will have been established public contacts entirely free of the taints of commercialism, paternalism and politics, in our relation to the public in health matters and all phases of relationship of the doctor to the public.

To accomplish such a status, we can all readily perceive the necessity for individual selfish interests and aggrandizement being banned from our midst, and to enter upon its accomplishment properly equipped at the outset, through thoroughly organized and functioning county and state, and national medical groups.

We, as physicians, are most prone to the habit of allowing "friend wife" to assume all the duties and details of our home and social life—and satisfy ourselves with habitual positive presumption that it will be carefully, meticulously and nobly done.

For the past ten years has flourished in our midst, in spite of our own apparent neglect, an organization known to us as "The Auxiliary"—they have done much without our moral and material aid. Most assuredly, with the fostering of a real comradeship which they offer us through their organization, our problems could be shared, and we could be most ably supported if we will but accept the auxiliary as a shareholder with us. Their glorious achievements amid adversity in this short span more than justify their existence, and demand our kindest consideration, and helpful attentiveness to their constructive program.

In summarizing these remarks, and in hopefully presenting to you what I believe to be of paramount importance to the greater success of this organization to itself and to humanity during the ensuing year, I herewith submit:

First, to build a more compact organization for the state, through its component societies by amply raising our financial budget to the point whereby we may derive all the potentialities offered, thus enabling us to procure the services of a proper coordinator-secretary.

Secondly, through the aforesaid increased financial budget to enlarge the scope of scientific activities thus to return the state association to the comparative scientific plane it should occupy.

Thirdly, by properly and wisely assuming our responsibilities as an association that we convince the public of our ability and willingness to deal fairly with them in matters of health, also accepting our political obligations as well as scientific.

Fourth, by aiding and recognizing our auxiliary, that it may accomplish jointly with us this program of helpfulness to humanity.

Sixty-seven years ago when this organization was formed it was outlined by our predecessors who wrote in our Constitution the following noble sentiments which have resounded through the years with clarion clearness the precepts upon which this association is founded:

"The purpose of this association shall be to federate and bring into one compact organization the entire medical profession of the state of Nebraska, and to unite with similar associations in other states to form the American Medical Association, with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interest: and to the enlightenment and direction of public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life."

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# ALLERGY IN GENERAL MEDICINE*

T. D. CUNNINGHAM, M. D., and J. C. MENDENHALL, M. D.,
Denver, Colo.

Since John Bostock (Case of Perennial Infection of the Eyes and Chest, Tr. Medico-Chir., Edinburgh 2: 161, 1919; Of the Catarrhus Aestivus, Ibid. 14: 437, 1828) in 1819 first described hay fever as found in England at that time, and associated it with the effluvium of new hay, the subject of allergy has gradually grown. In 1894, the introduction of the diphtheria antitoxin, with the necessary use of horse serum which meant danger and sometimes death, initiated an increased interest in this subject. Since 1910, when the term anaphylaxis was applied to the phenomenon which occurs after a rabbit has been injected with horse serum and, on second injection, dies of shock with the capillaries of the lungs choked with blood cells, this subject has grown with great rapidity. With this increased interest, many conditions have been isolated as allergic phenomena which have heretofore been associated with other diseases. Hardly a year passes without some new allergic disease being discovered. With each discovery, a recognized cause of an illness has been brought to light, so that it is timely to gather together, under the heading Allergy in General Medicine, the various diseases which today we recognize as associated with this phenomenon.

The term allergy is applied to the condition in which an individual is apparently poisoned by some pollen, protein or emanation which causes that individual either great discomfort or actual illness; whereas the majority of people are not so affected. Why certain individuals are sensitive and others are not has never been satisfactorily explained. It, however, is a definitely known fact that such is the condition, and it is also known that these individuals may be desensitized to a great many substances, and also, that the avoidance of these substances may give the individual relief. It is becoming recognized, moreover, that an individual may have possibilities of sensitization which are latent most of his life, and then, apparently as the result of an acute illness or some disturbance of the body mechanism, this sensitization ceases to be latent and becomes active, and that individual then suffers from what are known as allergic phenomena. Rich (Nature and Role of Bacterial Allergy, Lancet 2: 521, (Sept. 2) 1933) has shown that a normal individual may be sensitized to certain substances by repeated injection, but this normal individual after a period of time will lose that sensitization. This is not true of an allergic individual. When an individual is naturally sensitive to a substance, unless he is desensitized either by repeated contact or by repeated injections, he maintains this sensitization throughout life. Rich has also shown that immunity and desensitization are separate phenomena. There has been some confusion in the literature on these two points. Claussen (Relation of Allergy to General Resistance in Streptococcic Infection, J. Infec. Dis., 53: 157, (Sept. and Oct.) 1933) has recently shown that apparently allergy bears no useful relationship to general resistance to streptococci infection and at times there may be a harmful relationship. There is certain evidence to show that internal glandular secretion and infection play a part in allergic phenomena. The best example of this is a girl suffering from acne whose skin is perfectly clear until a week or a few days before her menstrual periods when she will often have a group of acneform lesions appear, although there is no change in diet, and these lesions may be prevented with ovarian extract.

Although the field of allergy is enlarging by taking in more diseases, the number of people who are recognized as possibly allergic is also increasing. Coca ("Asthma and Hay Fever in Theory and Practice," Chas. C. Thomas, 1931) in 1922 thought that 1 per cent of the people were allergic. Cooke and VanderVeer (Human Sensitization, J. Immunol., 1: 201, 1916) as early as 1916 considered that 7 per cent of the population were allergic. Within the year, Jimenez (A Survey of Sensitization in Students of the University of Michigan, J. Mich. Med. Soc., 33: 310, (June) 1934) writing in the Journal of the Michigan Medical Society, questioned 7,000 university students and decided that 54 per cent either have allergic histories or should be tested for sensitization. Vaughan (Atypical and Borlerline Allergic Manifestations as an Important Factor in General Medicine, South. Med. and Surg., 95: 15, (Jan.) 1933) has stated that between 60 and 70 per cent of the population are probably allergic.

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*Read at the Annual Western Nebraska Clinical Assembly, Sidney, Nebraska, Nov. 12 and 13, 1934.

If these estimations are only partially true, this subject is of vital importance to any one in medical practice. In order to better observe the significance of this important subject an outline is used.

MANIFESTATIONS OF ALLERGY

- I. Allergy and the Skin
  - A. Acne
  - B. Eczema
  - C. Acute dermatitis
  - D. Urticaria
  - E. Fungous infection
- II. Allergy and the Mucous Membranes
  - A. Hay fever
  - B. Asthma
    - 1. Due to protein
    - 2. Secondary to bronchitis
  - C. Nasal catarrh
  - D. Chronic cold
  - E. Winter cough
  - F. Vasomotor rhinitis
- III. Allergy and the Gastro-Intestinal Tract
  - A. Edema of the mouth
  - B. Canker sores
  - C. Vomiting
  - D. Ulcers
  - E. Indigestion
  - F. Mucous colitis
- IV. Allergy and the Genito-Urinary Tract
  - A. Enuresis
  - B. Burning urination
- V. Allergy and the Central Nervous System
  - A. Migraine
  - B. Epilepsy
- VI. Allergy and the Circulatory System
  - A. Endarteritis obliterans
  - B. Angina pectoris
  - C. Heart block
- VII. Allergy and Status Thymico-Lymphaticus
- VIII. Allergy and the Joints—Arthritis
- IX. Allergy and the Blood
- X. Allergy and Cancer

The allergic conditions associated with the skin are many. First, acne in practically all its forms is closely associated with protein sensitization plus internal glandular disturbance. White (Food Sensitization Dermatoses, J. Allergy, 4: 151, (Jan.) 1933) has called attention to this. My personal observation of over 35 cases is confirmatory. The majority of acne cases, properly tested and the offending proteins removed from the diet and contact, will clear completely. Apparently these cases yield to desensitization although this needs confirmation.

Eczema is another condition which is often allergic. It is the most unsatisfactory of all allergic conditions to treat. These patients acquire and lose their sensitization to food so rapidly that it is most difficult to give them relief. Autohemic therapy will often help. High acidity or anacidity of the stomach must be considered, as well as constipation. Some recommend the taking of mineral oil just before ingestion of an offending protein. Even with all these measures, the treatment of eczema is still most unsatisfactory when the eczema is due to food.

Eczema which occurs secondary to the oil of pollens, or what is known as dermatitis due to ragweed or other pollens, may occur in winter as well as summer. To the sensitive patient there is sufficient oil on the pollen so that even in the winter time, following a dust storm, he may have eczema. The treatment of this disease, as Coca has demonstrated, is most satisfactory. The oil is extracted from the pollen, diluted with olive or other oil, and injected into the buttock of the patient. In these cases you can promise a cure.

The various dyes used in clothes cause an acute dermatitis which is apparently an allergic phenomenon. Also, in some cases, cleaning fluids will cause a similar condition. These are best relieved by the removal of clothes dyed with the dye to which the patient is sensitive, or in the case of cleaning fluid, making sure that the clothes are thoroughly aired before the patient puts them on. Some cases of eczema are due to the clothing itself, materials such as wool, silk, rayon and cotton. Forunately, this is a very small group. In this condition the clothing must be avoided. As far as I know, desensitization by extracts of these materials has not been tried.

There is another type of eczema called pruritis ani which very often is associated with allergic conditions. Of course, this condition may often be confused with internal hemorrhoids, pin worms, etc., but an allergic history and pruritis ani usually point to an offending food. The removal of the food or foods from the diet will often give relief.

There is also an edema of the skin in the form of urticaria of various types. It is not difficult for the patient to recognize the food which causes the urticaria as it occurs so quickly after ingestion. However, there are various kinds of urticaria. The small papular lesions may be due to foods, and the removal of the food will give relief. However, Gay (A Critical Review of 170 Cases of Urticaria and Angioneurotic Edema, J. Allergy, Abs. 5: 615, (Sept.) 1934) has recently shown that a large percentage of urticarial cases are not allergic. Many allergists do not feel that the majority of cases of urticaria are allergic. Most of them are associated with some infection.

It is a question as to whether an infection is the source of the urticaria and the allergy is secondary to the infection, or whether this phenomenon is associated with the bacterial toxins. The majority of cases of urticaria are relieved by seeking out foci of infection, especially the gall bladder, teeth, tonsils and the colon, and treating them accordingly.

J. L. Grund (Fungous Skin Disease and Allergy: A Casual Relationship, New. Eng. J. Med., 207: 1187, (Dec. 29) 1932) has shown that in certain fungous infections of the skin an allergic condition is apparently produced which may be relieved by the proper treatment of the fungous infection.

The profession is more familiar with the manifestations of allergy on the mucous membranes than with any other allergic phenomena. First, let us consider the mucous membrane of the respiratory system, as well as the conjunctiva. Here we have hay fever as the most outstanding allergic condition. Hay fever may be properly diagnosed by complete skin tests of all the pollens in any section of the country, plus the food proteins. The elimination of the proteins from the diet and desensitization with pollen extracts, as well as such things as face powder and other proteins that come in contact with the mucous membrane, give most satisfactory results. It has been shown that the best results are obtained if the patient is treated all through the year until he is taking dilutions of great concentration. These cases will usually result in a permanent cure. Complicating hay fever, in about 70 per cent of the cases, is asthma, and it is interesting to note that a patient who has formerly had hay fever and then develops asthma, will often have very little hay fever during the hay fever season, but will have a great increase in the asthma.

Asthma may be sub-divided into two types: the asthma which is associated directly with protein of various types, and the asthma which is secondary to bronchitis. No asthmatic cases should be treated without first a thorough skin test for all pollens and proteins. Often a chronic bronchitis is due to protein sensitization with bacterial infection superimposed. Asthmatics, likewise, must have repeated skin tests at least once a year, because they become sensitive to other foods to which they did not react previously. The general condition of an asthmatic patient should not be overlooked. Many asthmatics have no hydrochloric acid in their stomachs, and any treatment which does not include this acid is doomed to failure. Whether lack of hydrochloric acid causes sensitization or is merely an associated condition is not known. Also, most asthmatics have a bacterial infection superimposed even on an asthma which is due to protein sensitization.

Another condition which has heretofore been disregarded as allergic is chronic nasal catarrh and the chronic cold. These individuals are very often sensitive to many foods and may be relieved by proper skin tests and the elimination of these foods from the diet, as well as by the proper use of bacterial vaccines.

Another condition is the chronic winter cough. It may often be relieved by vaccines, but in many cases has an allergic basis which does not carry the individual into asthma but may give him the chronic cough.

Another condition in which allergy undoubtedly plays a part is vasomotor rhinitis. This is not entirely allergic, but is partly so. It is interesting to know that the polypi which often develop in this condition will recede and disappear when the patient is removed from the offending protein. Nervous exhaustion, infection and protein sensitization are the three big factors in vasomotor rhinitis.

Now we come to the mucous membrane of the gastro-intestinal tract and its associated smooth musculature. People who are very sensitive to certain foods will have a sudden edema of the mouth and mucous membrane associated with vomiting when a food is eaten to which they are sensitive. This is especially true of people who are sensitive to eggs. They usually recognize the foods to which they are sensitive and eliminate them from the diet. Such a history in an upset digestion may suggest a method of relieving gastric symptoms which have defied ordinary measures.

Another condition which occurs in the mouth is a burning numbness on taking food to which the individual is sensitive. This is not recognized as an allergic phenomenon, nevertheless, it is. Canker sores in the mouth are definitely an allergic phenomenon. If foods to which the patient is sensitive are avoided, the mouth clears up.

Now we come to one of the conditions which for many years was not thought to be allergic, and that is the ulcerations of the stomach and duodenum. Kern and Stewart (Allergy in Duodenal Ulcers: Incidence and Significance of Food Hypersensitiveness as Observed in 32 Patients, J. Allergy, 3: 51, (Nov.) 1931) in 32 cases of ulceration found that only 15 per cent were not sensitive to foods or other proteins when skin tested. It has been my experience that when ulcers do not heal immediately with ordinary forms of ulcer treatment, i.e. the Sippy diet and alkalies, they may be allergic. A careful history of allergy should be taken, and if present, food tests should be applied. Ulcers secondary to sensitization will not heal unless the offending foods are eliminated from the diet. Tobacco may be a very important factor in these cases.

The term indigestion covers a multitude of sins. If these cases have an allergic history, a skin test should be done, and the removal of foods to which they react will usually clear up this indigestion.

Vomiting may be a symptom of many conditions, but vomiting in an individual that has no other explanation, with repeated attacks and a history of allergy in the family, should be suspected of being allergic and the individual skin tested. Thus you can eliminate the foods which cause this condition especially in children. Abdominal pain is definitely associated with allergic conditions and is due to an edema of the mucous membrane and a spasm of the smooth musculature. These cases often show a high eosinophilia in the blood. Considering abdominal pain, one should have in mind allergy, although there are many pathological conditions which produce this symptom.

There is definite proof that allergy is a cause of mucous colitis in certain cases. Hollander in 1927 (Mucous Colitis Due to Food Allergy, Am. J. Med. Sci., 174: 495, 1927) reported cases of typical mucous colitis which were proved to be allergic and in which complete recovery followed the elimination of the offending foods from the diet. One case of my own for over 60 years had had severe abdominal cramps and colitis. She had traveled to many clinics both here and abroad without relief. After food tests and the elimination of 35 foods from her diet, she is perfectly comfortable.

In the genito-urinary tract, the allergic phenomena have not been thoroughly investigated. There is no question that burning and some enuresis are produced in certain cases by sensitization to foods. Some men believe that sensitization starts an irritation of the mucous membrane and thereby lowers resistence to infection in allergic individuals. The pus in the urine of these individuals is made up mostly of eosinophils. Allergy should be kept in mind especially in chronic conditions such as blebs and ulcers in the bladder.

Now we come to the manifestations of allergy in the central nervous system. First among these we have migraine. Vaughan (Allergic Migraine, Am. J. Med. Sci., 185: 821, (June) 1933) maintained that 70 per cent of cases of migraine are due to allergy. A history of acne, hay fever, asthma, migraine or other allergic conditions in cases of severe headache give a valuable clue to a possible sensitization. The elimination from the diet of the foods to which the patient is sensitive produces perfectly astonishing cures. The proof remains that if the food is eaten again, the headache returns. In females, the question of menopause headache must be kept in mind as the skin tests may need the supplementing help of ovarian extract.

There are some men who feel that epilepsy in certain instances has an allergic background, and there are cases reported in the literature to prove this point. In the study of 100 cases, Spangler (Allergy and Epilepsy: An Analysis of 100 Cases, J. Lab. & Clin. Med., 13: 41, 1927) found that 80 per cent gave a history of allergy, but the results of removing them from the foods to which they were sensitive were not so gratifying. Waldbott (Allergy as a Cause of Epileptiform Convulsions, Arch. Neurol. & Psychiat., 23: 361, 1930) has reported a case of asthma and epilepsy alternating. When the patient had asthma, he had no epilepsy, and when he had no asthma, he had epilepsy. My personal experience with this condition has not been very satisfactory.

So-called status thymico-lymphaticus, as Waldbott (The Relationship of So-Called Status Thymico Lymphaticus to Allergy, J. Allery; 4: 294, 1933) has pointed out, may be due to allergic shock. Waldbott has investigated 20 cases and has found that in some of them the microscopic examination of the lung capillaries shows them blocked with blood cells, a condition found in animals dead of anaphylactic shock.

Allergy in the circulatory system is most interesting, as apparently certain types of sensitizations work only on the smooth muscles of the arteries. First among these must be considered endarteritis obliterans in which Sulzberger (Recent Immunologic Studies in Hypersensitivity to Tobacco, J. A. M. A., 102: 11, (Jan. 6) 1934) has shown that 80 per cent of these cases are sensitive to one or more of the proteins of tobacco. He has also shown that the nicotine has nothing to do with this. A large group of normals were tested, of which only 10 per cent were sensitive to tobacco. In the treatment of endarteritis obliterans to stop the use of tobacco is mandatory.

G. Werley (Is Allergy a Factor in Angina Pectoris and Cardiac Infarct? J. Allergy, Abs., 4: 65, 1932) reports a case of angina pectoris which was relieved by removing the offending food from the diet, and the condition recurred when the food was eaten. This observation has not been confirmed.

Certain individuals (Waldbott: Hypertension Associated with Allergy, J. A. M. A., 94: 1390, (May 3) 1930) etc. are trying to associate essential hypertension with allergy. At present there is no proved relationship to allergy.

Healy (Gastro-Intestinal Allergy Associated with Transient Intraventricular Heart Block, New Eng. J. Med., 210: 123, (Jan. 18) 1934) reports a case of gastro-intestinal allergy associated with auricular-ventricular block. Here is an unexplored field.

Now the joints have not been overlooked as to allergic phenomena. Vaughan (Bacterial Allergy and Chronic Arthritis, Vir. Med. M., 59: 7, (Apr.) 1932) in 1932 studied 100 cases of arthritis. He completely cured 10 per cent with minute doses of vaccine, and thought that this was an allergic phenomenon. There is no question that following the giving of serum to certain individuals there is an arthralgia which is definitely associated with the urticaria from the injection of serum. Whether arthritis, as we know it, is at all related to allergy, has not been proven.

The blood itself is not immune to allergy. For example, in these individuals who are sensitive to many foods, there is a certain kind of pallor which is usually associated with infection, and which disappears entirely a few days after the offending foods are removed from the diet. In a child or individual who is subject to repeated colds, repeated pneumonia, who has a continuous pallor—in these cases are often found the most allergic individuals and also the most gratifying results.

Kahn of San Antonio (Allergy and Infection: Practical Value of a Cytological Examination of Nasal Smears, J. A. M. A., 99: 1494, (Oct. 29) 1932) has written that true vasomotor rhinitis cases yield a percentage of eosinophils in the nasal secretion. Also, take acute abdominal pain due to allergy; it, too, exhibits a high percentage of eosinophils. However, one cannot depend absolutely on an eosinophilia as a direct result of sensitization because it is known that any irritation of the skin or mucous membrane may produce an eosinophilia.

And now an attempt to connect cancer with allergy has been made. Cutler (Anaphylactic Manifestations in Cancer, J. Allergy, 4: 389, (July) 1933) has reported on 35 cases of cancer which were tested with extracts of cancer tissue. He found that cancer cases gave three times as many positive skin tests as did those cases which did not have cancer. In 25 control cases without cancer, the test was positive in only 6 cases. This is also a field which has not been explored allergically.

In summary, it must be admitted that an increasing percentage of people are allergic, perhaps not so many as Vaughan (Atypical and Borderline Allergic Manifestations as an Important Factor in General Medicine, South. Med. & Surg., 95: 15, (Jan.) 1933) and others report. However, the facts proved in allergy must be kept in mind and on every history taken the question should be asked in regard to migraine, asthma, hay fever, eczema in any of the blood relatives for several generations.

It is also a fact which we cannot ignore, that individuals who are sensitive to certain things lose their sensitization when they are not in contact with these proteins, and develop sensitizations when they are in contact with other proteins. This feature of the disease is not generally recognized, but being recognized, it gives us a greater chance to relieve people who are sensitive. The skin tests can easily be repeated and the patient kept in a state of good health. Even the severe asthmatic, when properly studied and with co-operation, may be completely relieved.

At the present time we cannot ignore such conditions as acne, hay fever, and asthma, chronic cough and cold, vasomotor rhinitis, gastro-intestinal manifestations, and migraine which have been proved to be allergic. The other conditions which have been mentioned should be kept in mind because the field of allergy is still in its infancy and apparently has many more possibilities.

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## TAKING CHANCES

(Milwaukee Medical Times)

Customer—Good heavens, Mr. Druggist, I'm poisoned. It must have been the sandwiches my wife gave me.

Pharmacist—Yes, that's it. I tell you, you're taking a chance every time you eat a sandwich that isn't prepared by a registered pharmacist.

# CANCERS OF FACE AND ORAL CAVITY

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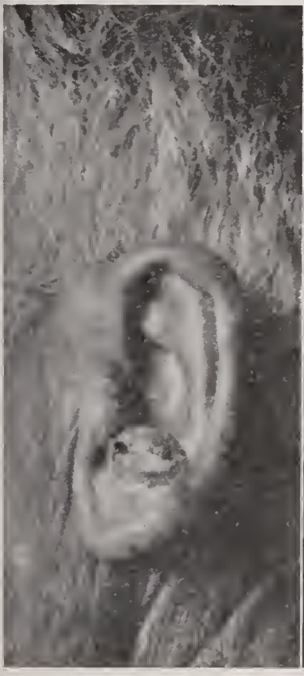
Out of 2,100 cases of benign and malignant epidermal and appendage tumors from the Surgical Pathological Laboratory of Johns Hopkins hospital recently reported by Geschicter and Koehler(1), 960 were malignant, 535 being appendage or basal cell cancers and 425 being epidermal or squamous cell cancers. This number was located on all parts of the body with 716 of the 960 malignant cancers located on the head. This means that of the skin cancers found on all parts of the body, three were on the head to one elsewhere on the body. These statistics do not include cancers of the lips and oral cavity which, if included, would raise the ratio still higher.



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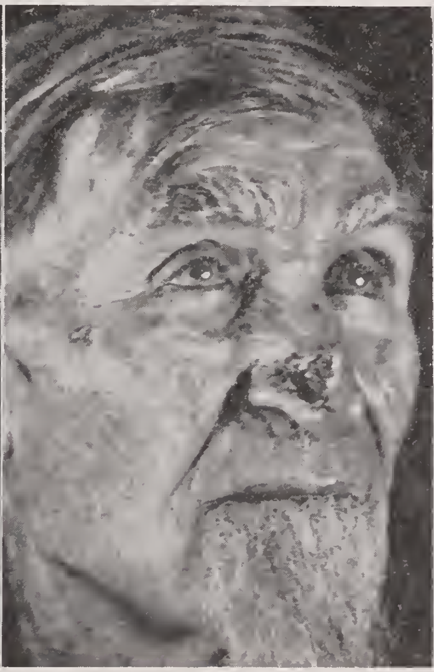

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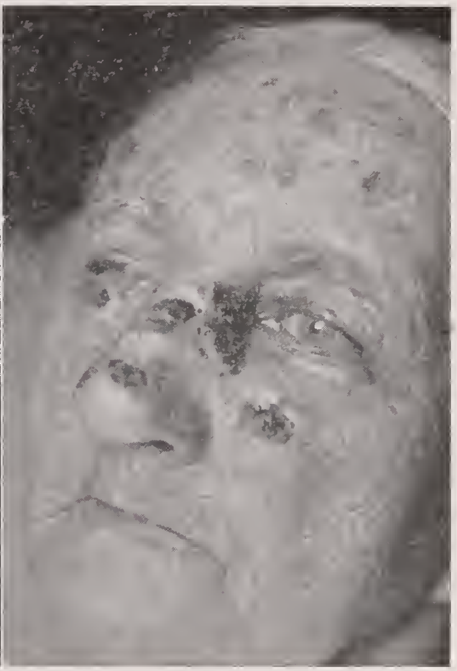

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**Fig. 1.** Case No. 21155, E. J., 63. Epithelioma in lower part of inner side of left ear involving the cartilage.
**Fig. 2.** Case No. 21781, J. K., 84. Epithelioma of nose invading cartilage.
**Fig. 3.** Case No. 22671, Mrs. I. J., 72. Multiple epitheliomas of nose and cheeks.

The basal cell type of cancer of the face is a local disease starting as a small lesion and slowly growing larger by invasion excentrically and downward. At first there is an elevated indurated area in the skin but as the growth gets larger ulceration takes place eventually resulting, in the well advanced case, in the so-called "rodent ulcer." In these neglected cases the subcutaneous tissues may become invaded down to the bone or even the bone itself may be destroyed. The natural development of this type of cancer is by direct extension into the surrounding tissues with little tendency to metastasize through the lymphatic channels. Since basal cell cancers arise from the malpighian layer and the appendages of the skin Geschicter suggests calling them "appendage cancers."

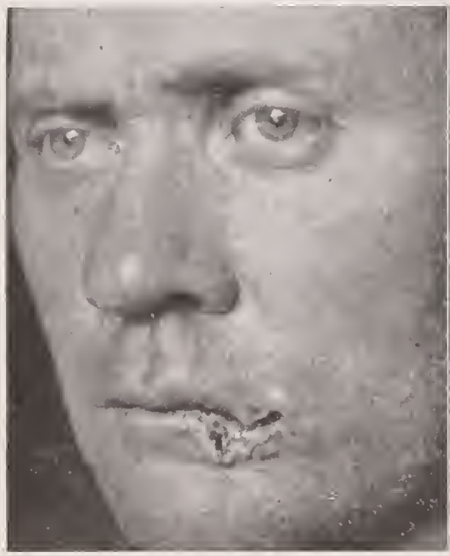
On the other hand the squamous cell cancers are called by the same author "epidermal cancers." Squamous cell cancers are slow growing, usually starting as a scaly, keratinized area which slowly becomes harder and invades deeper until, at last, it becomes an open ulcer. In the oral cavity the squamous cell cancer frequently begins, especially in smokers or tobacco chewers, as a leukoplakia which thickens and then ulcerates. In other cases the irritation of a poorly fitted crown or an irregular tooth may be the cause. In some patients a poorly fitted artificial denture may keep up a point of irritation which develops into "epidermal cancer."

On the lip one frequently sees a papillary type of "epidermal cancer." This type seems to be less malignant in its clinical course than the flat invading type. Squamous cell cancers invade the deep layers of the skin, the subcutaneous tissue and even the underlying bone. Very frequently when the patient with cancer of the mouth comes to the physician, the bone has already been invaded. In squamous cell cancers of the nose and ear, many times the cartilage is invaded when the patient first comes to the doctor.

Not only do squamous cell cancers invade cartilage and bone early but they metastasize early into adjacent lymphatic glands. Due to the different behavior of the two types the squamous cell cancer is much more difficult to successfully treat than is the basal cell type.

Bloodgood(2), in speaking of squamous cell cancers of the lip, reported only two cured out of 32 cases where the local lesion alone was removed and the lymph glands were undisturbed. After invasion of bone he found no record of recovery.

The following case reports illustrate some of the difficult types which come for treatment:



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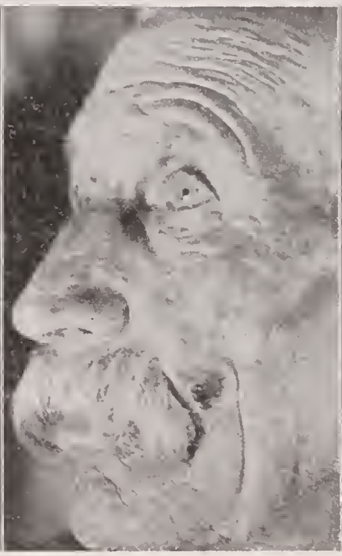

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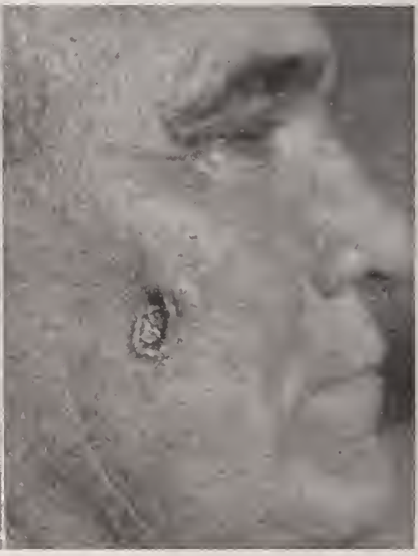

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Fig. 4. Case No. 21114, R. E. R., 40. Squamous cell epithelioma involving entire thickness of left half of lower lip and adjacent cheek and gum and mandible and sub-maxillary glands.

Fig. 5. Case No. 21310, N. P. W. Localized epithelioma of left cheek with involvement of skin only.

Fig. 6. Case No. 19984, J. M., 50. Epithelioma of right cheek recurrent after removal by caustic paste by a layman "cancer doctor."

No. 40817, A. C., referred by Dr. P. G. Ingersoll.

History: A white male patient, aged 74, stated that about one year ago, while sneezing, he bit the inner side of his right cheek with his artificial teeth. Since then a growth has appeared which has spread until it covers the inner side of the right cheek, palate, lower jaw and lower lip.

Description: The mouth was endentulous. An ulcerated indurated growth involved the right half of the hard palate extending from near the midline outward over the gingivo-buccal fold, covered the entire inner·surface of the cheek from the posterior angle forward to the middle of the lower lip and extended downward over the gum of the right mandible from the angle to the incisor region. The growth extended onto the margin of the cutaneous surface at the right angle of the mouth where it showed as a cauliflower like mass 2 cm in diameter. X-ray films showed no bone involvement.

Diagnosis: Squamous cell carcinoma of the right half of the palate, the right cheek, the right mandible and the mucous surface of the right half of the lower lip.

Treatment: Under Avertin anesthesia, the right half of the inner side of the entire right cheek, right mandible from the angle forward beyond the midline, and the right half of the lower lip, were coagulated and curetted to healthy tissue. Postoperative saline irrigations were used. X-ray treatments were given over the submaxillary and cervical lymphatic gland areas.

Description after treatment and complete healing. The mouth and tongue are covered by normally colored mucous membrane. The right half of the lower lip is adherent to the mandible obliterating the gingivolabial fold so that the patient drools when he leans forward. Otherwise the mouth appears as a normally edentulous mouth. There has been no recurrence in three years.

No. 37094, Wm. J., referred by Dr. C. A. Carroll.

History: A white male patient, aged 63, stated that about three months ago he noticed bleeding about his lower front teeth which appeared to be accompanied by thickening of the gums. Three weeks previous to the present consultation, the dentist extracted the lower teeth. Since the extraction, a growth has sprung up very rapidly until it pushed the lower lip out and crowded the tongue against the roof of the mouth preventing speech and making it necessary to obtain the history from relatives.

Description: The mandible was edentulous. A cauliflower-like growth filled the mouth pushing the tongue backward and upward against the palate and the lower lip forward. The growth sprang from the floor of the mouth extending from the left molar region around to the right bicuspid region. The gums of the edentulous mandible were ulcerated and involved in the growth from the left molar to the right bicuspid region with extension into the gingivo-buccal fold and the gingivolabial fold and up on the inner side of the left cheek and inner side of the lower lip. The surface of the growth was bleeding and necrotic. X-ray films revealed destructive involvement of the mandible from the left angle around to the right bicuspid region.

Diagnosis: Carcinoma of the floor of the mouth and mandible.

Treatment: Under ether anesthesia the entire diseased area was coagulated with the damped high frequency electric current, including the mandible from angle to angle. The operation was bloodless. Saline mouth irrigations, every three hours, were used as soon as the patient recovered consciousness. Four months later a small recurrence was treated in a similar manner.

Description after treatment and complete healing. The border of the mandible is depressed from molar region to molar region. The mouth is covered by normally colored mucous membrane. The tongue is normal in shape and appearance but is sufficiently fixed to the floor of the mouth to give the patient a slight "tongue-tied lisp" and prevents the patient from extending the tongue. There has been no evidence of a recurrence during more than five years.

No. 42172, G. K., referred by Dr. Evald Olson.

History: A white male patient, aged 45, stated that about four years ago he noticed a small growth in the right side of the mouth where the cheek joins the lower jaw back of the molar teeth. This remained stationery in size until a tooth was pulled, since which the tumor grew rapidly. The patient stated that he holds his snuff in the right cheek where the growth first started.

Description: All teeth were present except the right lower molars and second bicuspid. The right lower molar region was occupied by a cauliflower-like new growth about 5 cm in diameter which appeared to spring from a molar tooth socket. It had spread until it extended from the angle forward overlapping the first bicuspid tooth and over the gingivo-buccal fold onto the inner side of the right cheek and medially over the inner side of the mandible encroaching slightly onto the floor of the mouth but not involving the tongue. X-ray films showed a destructive bone lesion in the right lower molar region. The right submaxillary and anterior cervical lymph glands were palpable.

Diagnosis: Cancer of the soft tissues and bone at the right lower molar region.

Treatment: Under Avertin anesthesia, the right submaxillary and anterior cervical lymph glands were removed. The growth in the mouth was coagulated, including the diseased mandible. The molar teeth were removed. Postoperative x-radiation was used. A large sequestrum came away three months later.

Description after treatment and healing. The molar region of the right mandible is depressed but the entire surface of the mouth is covered by normally colored mucous membrane. The tongue is freely movable and the mouth can be opened 75 per cent of normal. The patient has remained well two years.

## TREATMENT

For the smaller cutaneous cancers about the head with no metastases radiation is the method of choice. The disease disappears with little or no scarring after healing. Where the growth has invaded the subcutaneous structures or has metastasized to lymph glands other measures must be combined with radiation if success is to be attained. In some cases radiation of the primary lesion and the metastatic areas combined with surgical excision of glands or electrosurgical destruction of bone or cartilage may produce best results. Each patient must be treated according to the situation peculiar to himself.

The cases cited prove that by the use of present day methods of treatment combining radiation, surgery and electrosurgery results far superior to previous methods are attained. Many of these patients formerly would have been allowed to die as soon as possible but are now alive and well from four to seven years after treatment with no evidence of recurrence.

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# A METHOD OF HANDLING RUPTURED APPENDICES*

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It is customary to begin a paper on the subject of appendicitis with an apology, which, however, is not necessary. for as Lord Moynihan said recently, "Appendicitis is a subject concerning which wisdom has not yet descended upon all of us." The truth of this statement is clearly indicated by the fact that in the larger communities of this country, the mortality from appendicitis averages about sixteen or seventeen per one hundred thousand every year, over a considerable period of years, and there has been very little improvement, particularly in the number of cases coming to operation after complications have developed. This statement is further borne out by the fact that in an extended survey of appendicitis in the hospitals of Philadelphia during the past year, 55 physicians prescribed laxatives to 55 patients suffering with appendicitis, which resulted in four deaths, and this in the face of the fact that a very extensive campaign on education has been carried on in Philadelphia, with special stress on the warning against the use of laxatives and in the face of the fact that 2,400 years ago Hippocrates warned that "In sharp disease and in their beginning, we ought seldom to use a purging medicine."

It is only fair to say that the mortality from appendicitis can be all but eliminated by an early diagnosis and early surgery, and by this means alone. Delay, Procrastination and Postponement," as Heyd said, "Will never represent surgical or medical attainments, but only a roster of martyrs from appendicitis." It may be that the more radical one is concerning the early operative treatment of appendicitis, the more conservative one is in fact. Finney, in a recent report of a large series, presented a chronic group of 827 cases with one death, or a mortality rate of 12/100 of 1%; in 731 recurring cases there was one death, or a mortality of .14%; in 548 subacute cases, there was not a single death. In other words, by prophylactic, or early operation, the mortality rate in 2,106 cases with two deaths was .095%. In 1,129 cases in the acute gangrenous stage, there were 16 deaths, or a mortality rate of 1.24%. Here the risk has been increased approximately 15 times and the appendix is still not ruptured. In 438 cases with abscess there were 20 deaths, or a mortality rate of 4.57% and the danger has again been increased by more than three times. In the peritonitis group there were 240 with 54 deaths, a mortality rate of 22.08% and the danger again multiplied by approximately 5, a total increase over the early group of more than 225 times. These figures are from a large group of cases cared for by the average surgeon and representing average mortality. It can, therefore, be seen that the risk of waiting to see, is entirely too great to be justified. There is only one thing to wait for and that is perforation.

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*Read before the Lancaster Medical Society on January 2, 1935.

Since the only strictly scientific and correct treatment of ruptured appendices is their entire elimination, I shall say a few words about early diagnosis and early treatment. There is no constant sign or symptom in appendicitis. Actual pain, may or may not be present, and this, notwithstanding the fact that some of the best surgeons have reported that without pain there is no appendicitis. The disease in its early steps may simulate almost any condition. To make the diagnosis more difficult, the patient usually has some reason for the presence of the abdominal uprising. In children and in the aged, in whom the disease is most fatal, the cause is usually assigned to a dietary indiscretion. Such statements must always be taken with great misgivings. Thus, the early generalized abdominal symptoms are frequently quite similar to those produced by dietary indiscretion, and it is only when the infection has reached the serosa of the appendix and the condition has become pathologically a localized peritonitis, that the diagnosis is frequently made. Perforation, rupture and gangrene mean that the pus pressure of the empyema has been temporarily relieved and the absorption for the time being, diminished, but the danger to the patient is markedly increased. It is at this time that surgical postponement and medical procrastination, unfortunately, so often take place. It is in the early stages when the symptoms are generalized and when the mother of a child is blaming a dietary error, that cathartics are frequently given. This event is so important that Moynihan states that "the mere giving of a laxative is indication enough for instant operation."

In a series of cases recently reported of 402 patients with acute appendicitis who had had no laxative, one in 80 died. Of 992 patients who had taken one laxative, one in 14 died. Of 992 patients who had taken two or more laxatives, one in 7 died. In a Philadelphia series, practically the same result was recorded. Of 3,293 patients receiving laxatives, one in 16 died. Of 1305 patients who received no laxative, one in 109 died. It therefore, becomes quite evident, as has been said, that the patient who takes, or the physician who gives, a laxative in acute appendicitis, unwittingly and unconsciously, writes the death certificate with a cathartic.

One should always remember that it is safer to err on the side of conservatism and take out an innocent appendix than to allow complications to develop. As Murphy said, "Distrust of the inflamed appendix is the one safe surgical frame of mind," or as Bastinelli, a conservative Italian surgeon has recently said, "When physicians are discussing whether a case is appendicitis or not, it is. When they are inclined to admit the possibility of appendicitis without being perfectly sure of it, it not only is, but it is about to perforate. When the diagnosis is sure, it is already perforated with more or less circumscribed peritonitis." These statements, as I have already indicated, are more true in a child and in the aged. Two-thirds of the mortality occurs before the age of twelve and after the age of forty, although about one-third of the cases occur in these age groups.

In a series of 250 cases in children recently reported from the Charity hospital in New Orleans, in 77%, gangrene, rupture, abscess or peritonitis, or a combination was a complication. In 67 cases in this series of the simple acute or acute suppurative variety, the mortality was zero. The mortality for the whole series was 7.6%. The mortality for those cases with peritonitis was 20.6%.

In a series of 43 cases in patients over 60 years of age recently reported from the Peter Bent Brigham hospital in Boston, the mortality was 28%. In these cases, 55% were appendiceal abscess, 9% generalized peritonitis, and 16% had gangrene appendices. In other words, 80% of this series had complications. The presence of abscess in many of these cases came as a distinct surprise to the operator.

There is one other condition in which the diagnosis is unusually difficult and the result unusually disastrous, and that is during pregnancy. The patient who has had recurrent attacks of appendicitis is apt to have a flare-up during the pregnancy. In the later months of pregnancy, especially if contraction pains have been present, the diagnosis is rendered very difficult. Here, owing to the fact that the uterus occupies so large a part of the abdomen, and there is no walling off, perforation with peritonitis is frequent and disastrous. The removal of the appendix during pregnancy rarely interferes in any way with the course of pregnancy and if any doubt exists, it is far safer to remove it.

To sum up then: Death in appendicitis results from:

1. Cathartics.
2. Failure to diagnose early.
3. Failure to recognize the gravity of appendicitis.
4. Medical, so-called, treatment, or procrastination.
5. Operative postponement.
6. Incorrect operative, pre-operative or post-operative treatment.

In pre-operative treatment it is important:

1. To give nothing by mouth, no food, water or medicine.
2. Under no circumstances, give cathartics.
3. Send for a competent surgeon.
4. Have the patient remain inactive.

The question of cathartics, we have already discussed. The greatest biological stimulant of peristalsis is the taking of food or water into the stomach, and peristalsis, the single outstanding cause of dissemination of infectious material in the abdomen, as well as a potent cause in bringing about perforation. If the patient is dehydrated, or not in the best condition for immediate operation, it is well, while the operating room is being prepared, to give 1,000 cc or more of normal saline, or glucose solution intravenously. The giving of fluids by mouth or by rectum, pre-operatively or post-operatively, we consider distinctly bad. We believe that peristalsis is frequently set up as readily by fluids per rectum as by mouth.

### ANESTHESIA

We consider spinal anesthesia, properly given, as by far the safest anesthesia in ruptured appendices. There is much less danger of dissemination of infectious material in the abdomen, the operation is facilitated and is more easily confined to the already infected area. There is, we believe, much less danger of post-operative pulmonary complications, as the patient is at all times conscious and co-operative, and the patient, unquestionably, returns to the room with less shock and less change in the vital functions than after a general anesthesia.

### TIME OF OPERATION

This is a very much disputed point in surgery at the present time. A large number of good surgeons over the country are practicing the principle of deferred operation. In some cases this is unquestionably a good practice. It is somewhat difficult to form an estimate of the value of this procedure because one cannot determine from statistics, how many patients have died while waiting for an opportune time to operate. Coller and Potter in a recent series reported that eight patients out of a group of 85 died while undergoing a deferred treatment. This represented a mortality of 9.4%. This is probably a low mortality for the type of patients with which they are dealing, but on the other hand, we believe this represents a higher mortality than the average operative mortality of patients with so-called general peritonitis. The best statistics so far reported are those of LeGrand Guerry, who reported 135 cases of gangrenous, ruptured appendices, with diffused peritonitis with two deaths, or a mortality of 1.4%. We are not just sure from his remarks how he arrived at his mortality rate. If it represents all patients who died, both while undergoing deferred treatment and after operation, it is certainly a model record.

Dr. Buckbinder in an experimental peritonitis, produced a so-called lethal standard of diffused peritonitis by means of an open loop of ileum that had a mortality of 90% with a life expectancy averaging four days. When, however, the septic loop was removed at the end of 24 hours, the mortality was reduced to 58%. This, as he remarks, is a very severe test of the efficiency of removing the septic focus. One has also to consider the fact that the differential diagnosis between a localizing and diffused process is extremely difficult. We have operated on patients in whom the entire abdomen was as rigid as a board and yet at operation have found an unruptured appendix. Based on these reasons, it has been our custom to delay only in case of subsiding abscess and only so long as the abdomen, temperature and pulse of the patient suggest definite localization. At any time during the stage of spread, we believe that the appendix, as a source of contamination, should be removed. We believe that operation during this period does not increase the rate of spread or area of contamination, if properly performed, and there are certainly both experimental and clinical observations to support such procedure.

### INCISION

Dr. Mont Reid believes that the surgical technique of appendectomy is playing an important role in the mortality statistics of acute appendicitis. He shows that in a series of over 3,000 cases of acute appendicitis in the Cincinnati General hospital, with no appreciable reduction in elapsed intervals between onset of symptoms and operatiou, or the use of purgative and anodynes, prior to surgical treatment, the death rate for the whole series of acute appendicitis has been reduced by 50.3% since the routine use of the rectus incision was abruptly and completely changed to that of a McBurney incision. We believe it is far preferrable to any other incision. The advantages as stated by Reid conform exactly to our own ideas, which are:

1. There is less soiling of the general peritoneal cavity.
2. There is less necessity of handling the intestines, it usually being necessary to touch the cecum and appendix only.
3. With the modern means of suction, the traumatizing effects of gauze pack are eliminated.
4. Drains can be placed in contact with the parietal peritoneum where they soon become in fact, extra peritoneal, and are not surrounded by intestines.
5. Wound complications are less.
6. Convalescence is shorter.
7. The healed wound is less disabling.

This incision is easily varied to a large extent and in case of a localized abscess, it is, of course, placed over the most prominent point. The appendix is usually removed but in case of localized abscess, if there is a possibility that in removing it, one will break through the wall and spread infection, then it is, by all means, left and only a drainage done.

### REMOVAL OF EXUDATE

This, we believe, is one of the most important parts of the operation in perforated appendices. The peritoneal surface is almost equal to that of the body and represents some 16,000 square inches and can under certain circumstances absorb 8% of the body weight in an hour. With the modern suction apparatus, this exudate is easily removed without in any way spreading the infection and it certainly reduces the toxic absorption and lessens the tendency to a spreading infection.

### DRAINAGE

This is another point of considerable contention and of considerable importance. Writers, too numerous to mention, have shown the inefficiency of drainage in diffused and spreading peritonitis. Abscess, of course, always requires drainage. In cases in which a considerable amount of diffuse exudate is removed and in which there is no tendency to localization, we frequently close the peritoneum and place a drain down to the muscles. In case of a localized infection about the appendix or limited to the right fossa and pelvis, we place a drain in the pelvis and one at the stump of the appendix, being careful that these drains are placed against the lateral peritoneal wall and, if possible, placed over the omentum, so that they do not come in contact with any loop of the bowel. Placed in this manner and in this type of case, we feel that they have a very considerable value. No buried sutures are used in any of the infected cases, as they only result in irritation. We use through and through silk worm gut which is removed at the end of four or five days, in the small incisions.

### IRRIGATIONS AND ANTISEPTICS

Various antiseptics and solutions have been used from time to time, in the peritoneal cavity. French surgeons formerly used ether, and tincture of iodine was at one time commonly used. At the last meeting of the American Medical Association, one surgeon reported that he used alcohol inside the abdominal cavity with a marked reduction in his mortality. In one case he used a gallon of alcohol, as an intra-abdominal lavage. We have not resorted to the use of such heroic measures, but have in a good many cases used 50 cc of amfetin, which we believe to be of some value, and of no harm. However, we prefer the use of a vaccine within the peritoneal cavity, such as colo-lysate, which also has very weak bacteriophage action.

### ENTEROSTOMY

The question of enterostomy has been one of contention ever since it was first advocated about 1880. Certain factors relative to this subject, however, must be given consideration in the treatment of peritonitis. It is generally conceded that in either mechanical bowel obstruction or in adynamic ileus if the distention has become so great that peristalsis is no longer present, an enterostomy does not drain and there is an absorption of toxic material from the bowel.

Hence, it is quite evident that a drainage of the bowel to be of most value must be done early, while the bowel is still in a functioning condition.

It is further stated, I believe, that it is impossible to differentiate between a mechanical and a paralytic ileus. Wilke, for example, in a study of a series of patients dying from peritonitis showed that the cause of death was a mechanical obstruction in seventy-five per cent of the cases.

A mechanical ileus announces two things. First, that there is a stoppage of the bowel. and second, that a paralytic ileus will eventually follow if this obstruction is not relieved. A careful use of the stethoscope over the abdomen at the first sign of distention will often times enable one to differentiate between a paralytic ileus per se and one resulting from a mechanical ileus.. There has been a further contention as to the site of election for enterostomy. The usual recommendations are:

1. Upper jejunum.
2. The first distended loop.
3. The ileum.
4. The cecum.

It is conceded that the high obstructions are much more dangerous than the low ones. Sweet has shown that the contents of the distended upper jejunum are much more toxic than the contents lower down. Why this is true, cannot be said. It is not even known whether it is due to bacteria or to some other agency. It can very definitely be said, however, that it is not entirely due to a change in the acid base mechanism. The giving of large quantities of chlorides, however, does exert a very beneficial effect.

We would emphasize, therefore, that a bowel with normal muscle tone does not absorb substances which it should not absorb. If, however, the wall is damaged to a certain extent, the toxic products enter the blood stream. Based on these principles, we have followed the practice of doing an enterostomy at the time of the primary operation if there is a possibility of obstruction either mechanical or paralytic developing. This procedure has been a source of great satisfaction for in those cases in which the bowel mechanism has been severely compromised, there has been a large amount of drainage with absence of the nausea and vomiting which was so frequent in our earlier cases.

For reasons already given, it has been always our practice to do the enterostomy a few inches below the ligament of Treitz, a procedure popularized by Dr. A. I. McKinnon of this city.

### MORPHINE

Our ideas concerning the use of morphine have changed to a very great extent in the past few years. As said in the previous paragraph, a bowel with a normal tone does not absorb toxic products. Contrary to our former belief, morphine does not inhibit bowel tone, but actually increases it. It does not, however, increase peristalsis. It, therefore, presents itself as an ideal agent for preserving the tone of the bowel and at the same time relieves pain. Morphine, we believe, should be used very liberally in the first few days of the post-operative treatment of an operation in the intestinal tract, particularly where the bowel is damaged not only by obstruction, but by infection within the peritoneal cavity.

### WATER AND BASE BALANCE

It has been shown by a good many investigators that there is a circulation of fluids into and out of the intestines. Rowntree has calculated the amount of fluid poured into the upper intestinal tract as between 7½ and 10 litres per day.

In a patient who is unable to take liquids and who is vomiting considerably, it can be said that this loss soon becomes serious. An animal can lose glycogen, fat and protein up to 40% of its body weight, but a fluid loss of 10% causes serious disorder and 20% to 25% causes death. Dehydration, hypochloremia and acid-base balance are intimately connected.

It has been shown that in an animal, fluids may be forced to the point of intoxication, but if concentrated sodium chloride is then given, the intoxication disappears and the water balance is re-established. Dehydration, hypochloremia and alkalosis, cause such symptoms as nausea, vomiting, low blood pressure, asthenia, increase in the red blood count and hemoglobin, increase in the nitrogen content of the blood, with drowsiness, irritability and headache.

The rise of the non-protein nitrogen of the blood shows definitely that destruction of the body tissue is going on and this is a constant accompaniment of dehydration and a fall of the blood chlorides. These conditions are all relieved by the giving of water and sodium chloride in sufficient amount. In any patient who has vomited to a considerable extent, we give 5% solution of sodium chloride in amounts of from 200 to 500 cc. Not only does this procedure restore the water balance of the body, elevate the chlorides, alleviate alkalosis, and reduce the protein content of the blood, but very definitely increases tone and peristalsis in the bowel and relieves gas pains.

It is to be emphasized that glucose and sodium bicarbonate are in no sense a substitute for sodium chloride, and it is also to be emphasized that one can never trust such general orders as to force fluids.

In all our dehydrated patients or in those who may have a disturbance of water balance, we not only begin with an intravenous of 200 cc of 5% sodium chloride, but for the first few days, we give at least 3,000 cc of normal saline with or without glucose intravenously. For the first forty-eight hours after any abdominal operation, we give no fluids by mouth or by bowel. We are absolutely convinced that this practically eliminates gas pains. When we begin feeding our patients, we no longer begin with orange juice, but with cream of wheat, toast, and egg albumen.

Continuous moist warm packs covering the entire abdomen are used on all peritonitis cases.

### POSITION

All patients with infection in the abdomen are immediately placed in a Fowler position. Clinically there seems to be much virtue in this. Experimentally, it has been shown that there is more absorption from the pelvis than from the region immediately underneath the diaphragm. It is certain, however, that placing the patient in a Fowler position tends to prevent cardiac and pulmonary complications, and with the type of fluid with which we are dealing it seems, experiments to the contrary, that there is less absorption of toxic material from the pelvis. The European idea of having a trapeze over every bed from which the patient raises himself, is most applicable and efficacious in these cases for the prevention of lung complications.

The material in this paper is based on our experience in 607 consecutive cases operated on by us in the last three years and are as follows:

### SUMMARY OF CASES

| | | |
|---|---|---|
| 1. | Chronic and recurrent | 225 |
| | Mortality | 0 |
| 2. | Acute | 303 |
| | Mortality | 0 |
| 3. | Gangrenous | 45 |
| | Mortality | 0 |
| 4. | Abscess | 60 |
| | Mortality | 0 |
| 5. | Peritonitis general | 19 |
| | Mortality | 2 |
| 6. | Mortality for whole series | 0.33% |
| 7. | Mortality for acute cases | 0.57% |
| 8. | Mortality for general peritonitis cases | 10.5 % |
| 9. | Jejunostomies | 17 |

### SUMMARY OF OUR TECHNIQUE

1. Spinal anesthesia.
2. Aspiration of fluid.
3. Jejunostomy.
4. Intraperitoneal vaccination.
5. Maintenance of body fluid and chloride levels.
6. Morphine freely.
7. Nothing by mouth or rectum for 48 hours.

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# OLIVER WENDELL HOLMES—POET AND PHYSICIAN*

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It is hardly an exaggeration to say that Oliver Wendell Holmes, beloved lyricist of the nineteenth century, is one of the most interesting of the literary figures of America. I believe that this is true, not only because of his appealing nature, but also because Holmes' life represented a series of peculiar incongruities and contradictory tendencies which only one of his character and temperament could be expected to reconcile. Even to us who grant the ability of such modern authors as Warwick Deeping, A. J. Cronin, Robert Bridges, and others to whom medical practice was once scarcely less familiar than their present art of writing, it is still puzzling to realize that Holmes in his time was also an active member of the profession.

Since his name is an illustrious one in medical history, and since his own efforts were always directed towards being known as a Doctor as well as a litterateur, let us consider not only Holmes' life as a poet, but with as equal emphasis give full place to his achievements as a physician.

Oliver Wendell Holmes was born in Cambridge, Massachusetts, in 1809, and spent his boyhood in the old gambrel roofed house which his father, the Calvinist pastor of the First Church, had inherited from Dr. David Holmes. Doctor David was a relative of the Wendells, Jacksons, and Quincys, all New England notables who formed a conscious aristocracy which was distinguished, as Holmes afterwards expressed it, by living in large houses.

The environs of Cambridge must have given Holmes as his heritage a love of beauty since the poet gathered into his spirit an admiration of the lush salt meadows along the banks of the Charles River, the gardens around his home, and all the old culture of the place, acquiring at the same time familiarity with his father's library. He believed that one must play among books in youth in order to feel at ease with their usage in later life.

Holmes was not favorably impressed by the ministry and pursued his education in Cambridgeport and Phillips Academy in Andover with the intention of preparing for law. When he at last entered Harvard it was still a small college, but during his first years he found that it boasted of one periodical, "The Collegian," to which the future poet contributed many humorous verses. Among these early works was "Old Ironsides" as it is known, and since this, by its patriotic sentiment saved the historic "Constitution" from being dismantled, its young author found himself a little famous. While taking his first year in law you may be sure he bore his laurels well and continued to write.

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When, with little warning, Holmes abandoned the legal course and began to study medicine, no very brilliant future could have been predicted for him in the profession. Under Doctor Jackson and his confreres the young man studied until 1833 when he left to complete his education in the hospitals of Paris where, to be considered well-trained, it was imperative to finish his work. The Faculte in Paris was brilliant and progressive, and here Holmes learned to look at medicine from a more scientific and logical viewpoint. His early letters which form a most interesting and enlightening part of his biographies, are filled with well written allusions to the standard attractions of the old world city, yet within a short time their tone changes to a character eloquent of rearoused interest in his studies. He refers to his advantages over the American men, and always a little of an egotist, the poet becomes quite self-centered in almost demanding that he be allowed to stay in the metropolis as long as he deems it necessary. A strange fact that, well liked and lovable, still Holmes had this certain self-satisfaction and small strain of snobbery. He always said that he preferred a "man of family," yet he was more of a liberal than his progenitors and had infinite tenderness so that years afterward he remembered with pity a child in a great white room in the hospital, the child with the "voice of such heavenly sweetness, with that reedy thrill in it which you have heard in the thrush's evensong, that I hear it at this moment." It would have been strange to have seen the young poet-doctor listening to the great surgeon Baron Boyer who, as Holmes described him, seemed always to look "as if he wanted to cut a collop out of a patient," and who "slashes away at a terrible rate when he gets hold of the subject of a fistula in its most frequent habitat." Those were golden years in Paris, and Dupuytren was still referred to as the one "great man of the other side of the river," active and to be reckoned with in spite of the three strokes he had suffered. Broussais was an old man, but Baron Larrey, whom Napoleon thought to be the most honest man he had ever seen, was teaching and spoke in reminiscence of the field of Austerlitz and the "last charge of the red lancers at Waterloo." Ricord, the "Voltaire of pelvic literature," a great skeptic about the morals of man, is described in the interesting Medical Essays of Holmes as one "who would have subjected Diana to treatment with his Mineral Specifics, and ordered a course of blue pills for the vestal virgins." The great Louis, "modest in the presence of nature, fearless in the face of authority," was the best loved of all and must have given Holmes courage for the leadership which would one day be demanded of him. Holmes left for home, with the same love for American democracy, for he wrote of William The Fourth in a derogatory manner, saying that he "wiped royal perspiration from a face which was probably the largest uncivilized spot in Europe"!

When he returned to America and was awarded his Doctor's degree, Holmes, with seeming intent, favored his two great interests, the same that would alternately claim his energies throughout his career, by also publishing his Phi Beta Kappa poem, together with a large collection of verses, among which was the "Last Leaf" which Lowell called unique, Poe hailed as a charming mixture of the humorous and sad, and which Lincoln loved.

It cannot have been apparent to Holmes at once that there was a contradiction in his art of the literateur and his art of the physician. When it became so, he met the incongruity with the courage with which he met the other perplexing problems which filled his life. He was finally to come more nearly to serving two masters than any great figure of the time, for he was a brilliant success in both of his chosen fields. Another peculiarity was that his "occasional" verse, so shoddy a part of other poets' work, was his finest due to his facility in suiting the occasion and yet giving the work a turn of humor or pathos which outlasted the event for which it was intended.

In spite of his efforts, there was always some slight inadequacy, some falling short in one vocation or the other, for instance, it was too much to start in medical practice with a book in the stalls bearing his name; so, when the young man put up his well-remembered sign, with the comment, "Small fevers gratefully received," people smiled graciously, took the little joke tolerantly, but took their favor elsewhere. He was not sorry for his dual ability for he said, "It is strange, very strange to me, that many men should devote themselves so exclusively to the study of their own particular calling."

In 1839 Holmes became Professor of Anatomy at Dartmouth and a year later was married for it seems that, as he remarked,

> "Men and devils both contrive
> Traps for catching girls alive."

He went to live at Number Eight Montgomery Street, an address to be familiar for years until he grew out of the house as he believed men do. All his life he lived in and around Boston which he called the "Hub of the Universe." Soon Holmes entered practice again and liked it because it gave him an excuse to keep a carriage. In the Autocart of the Breakfast Table he made mild fun of the light he kept burning at night for he says that a young man, inebriated, had a "moth-like" impulse and rushed at it one evening and thrust his fist through the front door glass in an effort to extinguish it. In the summer Holmes still lectured to medical classes and made his home in the hills of Pittsfield, an idyllic place where as he described them, "seven blessed summers were passed which stand in memory like the seven golden candlesticks in the beatific vision of the holy dreamer."

The meeting of the Boston Society for the Diffusion of Useful Knowledge was the occasion, in 1842, for one of his most brilliant medical essays. His excellent education and ability, together with literary talent resulted in a masterpiece of destructive argument against the delusion of Homeopathy. Not too witty, indeed grave and scientific in most part, Holmes marshalled his arguments in admirably clear style and the essay must be read to appreciate the depth of perception evidenced. With scorn and yet with justice, the Doctor touched upon the claims of the quackery and branded it with all others to come with their characteristics of false claims, sensational literature and endorsements. He showed that the physician who sees the vagaries of disease and the quick changes it can make, the few apparent cures of any unreasonable "system" mean nothing. Homeopathy assumed to cure disease by administration of drugs which would produce symptoms like those of the malady treated and furthermore that these results could be obtained from doses of millionth parts of a grain! At this time Hahnemann's original doctrine that all maladies come from a Psorias or itch was repudiated even among the Homeopath's ranks.

In classifying this quackery with tar water, metallic tractors, miracles of healing by the king, Holmes masterfully demonstrated discrepancies. He showed that when their twelfth dilution was used it was equal to a drop of tincture of chamomile diluted into a million lakes each the size of Lake Agnano which is two miles in circumference, then having the patient drink a dose of this "medication." With flashes of wit he pointed out the essential absurdity of "like cures like," for if this were true, one should administer arsenic in cases of arsenical poisoning. The essay increased Holmes' reputation as a delightful speaker and endeared him to the members of his profession who recognized his service.

The true greatness of the essayist rests upon his next achievement and some enthusiasts of the Homeopathic condemnation were to find a bombshell thrown into their midst for his next criticism directed with vehemence and assurance was to be hurled at an evil within the ranks of the practitioners. In 1845 Holmes rendered his greatest service to mankind when he published his famous essay on Puerperal Fever, by reason of which, considered in one way, he antedated Semmelweiss in exposing the condition of Obstetrics.

His revelation that this fever which was the bane of childbirth was not only contagious, but that it often was brought in all its deadliness to the mother by the very hands which skillfully cared for her, was to create a furor, and even when the "terrible evidence" he collected, led him to "shaping the truth it involved" it was ridiculed by authorities in Obstetrics such as the professors Meigs and Hodge of Philadelphia. The world which gladly acclaimed Helmholtz's discovery of the Ophthalmoscope in 1851 was not ready to assure a mother of a safe confinement by acknowledging past error.

Because his work was proven by results in a great Viennese hospital, Semmelweiss has received due credit for this advance in saving lives, but most of all because his was the fiercer intolerance of error which led him with almost insane insistence to force his great discovery forward with singleness of purpose which led him to the madhouse, but to eternal fame as well. Holmes, on the other hand, was a litterateur, ill conditioned and caring little for dispute, for he said, "Controversy equalizes fools and wise men in the same way and the fools know it." It was then, a great concession for him to republish his work in 1855.

Calmly, he explains in the preface, what interests led him to issue again his paper. A little note of pride leads him to call attention to growing approval from foreign sources though he explains that he must defend his personal dignity that he may have attention from students who confuse belief with evidence and, "not able to tell for themselves the breast from the bottle, pumping away for the milk of truth," take what is offered, "were it nothing better than a professor's shrivelled fore-finger." Widely quoted as a statement of the doctor's respect for motherhood, Holmes' words concerning his controversy are as beautiful as they are appropriate. He says, "I take no offense and attempt no retort. No man makes a quarrel with me over the counter-pane that covers a mother, with her new born infant at her breast. There is not an epithet in the vocabulary of slight and sarcasm that can reach my personal sensibilities in such a controversy."

We need not enter in detail into the reasoned paper which must be read in entirety to appreciate its unfailing logic. In ending the preface, Holmes ended, for his intents all argument and his words on this matter are unsurpassed for their fitness. He states, "I do not expect ever to return to this subject. There is a point of mental saturation, beyond which argument cannot be forced without breeding impatient if not harsh feelings toward those who refuse to be convinced. If I have so far manifested neither, it is well to stop here and leave the rest to those younger friends who may have more stomach for the dregs of a stale argument. I cannot treat as insignificant any opinions bearing on life. . . .," he continues, and with such a graceful adieu, the author left the subject before his audience disdaining further controversy. We wonder how he, having so little taste for argument could so have admired John Hunter who died while engaging in one, "assassinated by an insult."

Beginning the essay proper, Holmes presented his case excellently and claimed that the facts could not be disguised for, "no tongue can tell the heart breaking calamity . . . they have closed the eyes just opened upon a new world of love and happiness, they have cast the helplessness of infancy into the stranger's arms, or bequeathed it, with less cruelty the death of its dying parent. "The woman" Holmes continues, "about to become a mother, or with her new born infant upon her bosom, should be the object of trembling care and sympathy wherever she bears her tender burden, or stretches her aching limbs. God forbid that any member of the profession hazard her life negligently, unadvisedly or selfishly." Dr. Simpson remarked that a gentleman's hands were always clean, but Holmes had almost stumbled upon aspetic technique and disputed this facetious statement. Prevention, cases, proof, authority, all marked this essay which was the high point of service in Oliver Wendell Holmes' long life of usefullness, a work which has acquired for him a place high on the honor roll of medical history.

Holmes did not neglect his muse for in 1846 his second volume of poems was published. The "boys" of his class were honored nearly every reunion for he came prepared, saying:

> "I'm a florist in verse, and what would people say
> If I came to a banquet without my bouquet?"

Even as an old man he would rise amidst a salvo of cheers and flourish a paper to signify that his bouquet of words was there.

Again, however, medical recognition paralleled that of literature for Harvard appointed Holmes to the chairs of Anatomy and Physiology with the privilege of instructing in microscopy and several other things besides. In truth it was as he so quaintly remarked, no chair at all, it was a whole settee.

To the world which sees him as the poet, writing in his study or conversing wittily with his friends, it would seem the greatest of incongruities to apprehend Holmes in the Anatomy Room, cold and cheerless, lighted by high windows, filled with cadavers in all stages of dissection, and reached by a long dark stairway up which the asthmatic doctor had to come. Holmes was deft in dissection and his assistant said no one ever went into such raptures over a splendid specimen as did the poet. The class he taught had four long lectures before his, which came at the most difficult time of the day, but their interest was always rearoused by the wit and dynamic presentation of Dr. Holmes' subject. They would clamor until allowed to avalanche through narrow doors into his ampitheatre and when they were seated, miraculously unhurt, the professor would enter greeted always by great applause. It was delightful to listen to him and many of his remarks are handed down to this day. He would describe the coils of a gland as similar to a "fairy's intestine" and said of the pelvic arch that it was the triumphal arch under which we must all pass in entering life. Holding up the sphenoid bone one day he looked at it quizzically, said, "Gentlemen, this is the sphenoid bone," wherewith he deftly threw it out of the window! He always felt he and all professors taught too much and said he was ashamed of stressing the many twigs of the tympanic nerve. However, he kept the rounded corners away from what he considered to be sharp corners of truth.

In literary work, Holmes made discriminate use of his medical knowledge as is well illustrated by his essays in the "Autocrat of the Breakfast Table" and the others in this series of table talks. In these busy years Holmes moved to a new house along the Charles River upon which his study window looked. Here he gathered a library of the rarest of ancient books on Medicine. Tulupius, Schenckius and his "cases rariores," Vesalius, Pare, Spigelius and Bidlow with his "miracles of fine engravings and bad dissection." Holmes felt a twig of nerve passed from him to each of these volumes until the very day when he gave them, a handsome gift, to the new Medical Library which was built within a few blocks of his home.

When Lowell accepted editorship of the Atlantic Monthly which Holmes named, he aroused the Doctor from "literary lethargy," and made it a condition of his own editorship that the Autocrat should be revived after years in which only the initial article had appeared. So the Doctor began again after a pause of years with the remark, "I was just going to say when I was interrupted." The scintillating quality of his famous essays make them classics of their kind and one would fain take wine to stay sober with such a conversationalist as the Autocrat.

The Autocrat was ill received by some religious papers and a writer for one thought the reference to the breakfast table indicated a cookbook, and when he learned his mistake said it was of little matter since he felt that the book and its writer would be well cooked in some future life. Holmes was a rationalist and liberal in his view but the clergy remained among his best friends. He was quite frank about his attitude that "Belief must expect to be questioned," and time and again as in the "Deacon's Masterpiece" in which the one hoss shay is merely a figure of the Calvinistic chain of logic, he scores their assumptions and says not to argue against evil by lies and say it isn't nice! With memories of student days he exclaimed that "Good Americans, when they die, go to Paris."

A figure of note, Holmes of whom the society felt proud because of his literary prominence, was asked customarily to speak at the meetings of the Massachusetts Medical Society, and it was here in 1860 that he addressed them on "Currents and Counter-currents in Medical Science." Again one must read the essay to appreciate its worth. In mentioning his fight in the cause of prevention of puerperal fever, cheers greeted him and they welcomed the suggestion that after all the patient is often responsible for the giving of unnecessary medicine since he insists upon it and will, as he said, take pills found in the street under the delusion that just because they are medicine, they will help them.

In 1861, among other lectures which he gave, Holmes delivered a talk on "Border Lines of Knowledge" in which he reviewed the progress in chemistry, microscopy, pathology and physiology, advances which he had witnessed. His speech on "Scholastic and Bedside Teaching" in 1867 stressed the importance of information acquired at the bedside. He speaks of Medicine as appropriating everything from every practical source, and ends his discussion with a witty quip at the expense of Dr. Benj. Rush, an early American, whom he distinctly did not admire. Rush had stated that medicine was his wife and science his mistress, but Holmes succintly observed, "I do not think that the breach of the seventh commandment can be shown to have been of advantage to the legitimate owner of his affections." The doctor makes light at the expense of the historical figure of John Hunter with his tiger which he was pleasantly dissecting when interrupted to attend a patient. Hunter's preference for the striped animal is scored by the speaker who points out that one owes first allegiance to the patient.

Always a sane and honorable guide, the poet in 1872 gave his famous talk on "The Young Practitioner" at Bellevue hospital. He unburdened himself of much useful information, assuring the graduates that the diploma shrinks and that they should remember that a "man's ignorance is as much his private property and as precious in his own eyes as his family Bible." He warned them they should be careful of their appearance for they might be called to the "boudoir of suffering loveliness" and they "should not unsweet its atmosphere with reminiscences of extinguished meerschaums."

There is something a little sad considering his own dual occupation to hear his closing words. "Medicine is the most difficult of sciences and the most laborious of arts. It will task all your powers of body and mind if you are faithful to it. Do not dabble in the muddy sewer of politics, nor linger by the enchanting streams of literature, nor dig far off fields for the hidden secrets of alien science." Is the poet-physician thinking with some small regret of his own enchantment?

In dedicating the Medical Library in Boston, he recalled with fondness, however, the "intoxicating pleasure of authorship in college periodicals," saying that there was no form of lead poisoning quite so fatal to the young author as that from the printing presses.

Amidst all his medical activities he was interested in literary circles, being a member of the Saturday Club which included Bryant, Whittier, Lowell, Longfellow, and the best of the New England poets. In 1882 literature finally triumphed over his profession for he was forced to resign his professorship so that he might have more time for writing. In 1883, he was made Professor Emeritus and honored at a mamouth meeting in Harvard where all gathered to acclaim him. His students gave him a handsome present, and unable to thank them so overcome he was, he sent a note which explained to the medical minded class with the happy phrase that he "hoped they didn't mistake aphasia for acardia." The next years were spent in summer at Beverly farms, and in winter by the glowing hearth at home with his microscope and books.

The poet had never left Boston except on lecture tours since his student days until in 1886 he returned to Europe. He was immensely popular there and his trip became a triumphal journey marked by adulation everywhere. He was classed with Dickens and Lamb and above Lowell and was greeted with affection everywhere. Tennyson and Carlyle entertained him, and Cambridge as well as Edinburgh awarded him honorary degrees.

The return to America was saddened by the death of his wife, and before many years he had outlived his famous contemporaries. He spent his eighty-fifth birthday at Beverly, but when he returned to the city in September his asthma was worse, and his medical mind perceived that he was weakening daily. The last book had been issued and now stood with his other notable achievements and he was ready for the end, but met it cheerfully. One day he turned to Wendell, his son, who was caring for him, and referred to his death by saying, "What is it? King's Chappel?" and on being assured the services would be there he said, "Then I am satisfied. That is all I am going to say about it." He died Sunday noon, October 7, 1894, sitting in his chair, his last words thanking those who placed him there. He has his grave in Mt. Auburn, near where Lowell and Longfellow rest.

Holmes' own words concerning his work and interests must be final. Medicine will acclaim him and feel that his greatest work was done in science, American motherhood will be indebted to him forever. Literature from an equiponderant position hails his poems and essays, he being the artist always to those who love his works. He always felt that his greatest service was in his labor of love in saving lives from Puerperal Fever, but the thing he loved and placed above all the things he had ever done was one poem, "The Chambered Nautilus," a gem of lovely thought. Of his work we may feel that because of it

> "Our tardy Art shall wear an Angel's wings,
> And life shall lengthen with the joy it brings!"

But we will always remember that to the poet, all the world is in one song.

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## MY MOTHER

Who fed me from her gentle breast
And hushed me in her arms to rest,
And on my cheek sweet kisses prest?
My Mother.

When sleep forsook my open eye,
Who was it sung sweet lullaby
And rocked me that I should not cry?
My Mother.

Who sat and watched my infant head
When sleeping in my cradle bed,
And tears of sweet affection shed?
My Mother.

When pain and sickness made me cry,
Who gazed upon my heavy eye
And wept, for fear that I should die?
My Mother.

Who ran to help me when I fell
And would some pretty story tell
Or kiss the part to make it well?
My Mother.

Who taught my infant lips to pray,
To love God's holy Word and day,
And walk in wisdom's pleasant way?
My Mother.

And can I ever cease to be
Affectionate and kind to thee
Who was so very kind to me—
My Mother.

Oh, no, the thought I cannot bear;
And if God please my life to spare,
I hope I shall reward thy care,
My Mother.

When thou art feeble, old and gray,
My healthy arm shall be thy stay,
And I will soothe thy pains away,
My Mother.

And when I see thee hang thy head,
'Twill be my turn to watch thy bed,
And tears of sweet affection shed,
My Mother.

—Author Unknown.

# TREATMENT OF PERNICIOUS ANAEMIA WITH SPECIAL REFERENCE TO THE PARENTERAL METHOD

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The purpose of this paper is to emphasize the principles for adequate treatment of pernicious anaemia. The administration of liver extract by intramuscular injection will receive special attention because of a belief that its proper use best fulfills the needs in the majority of cases.

Since the introduction of liver therapy by Minot and Murphy in 1926, the treatment has been subject to modifications. For a period the feeding of whole liver was the only measure. Next was introduced the potent extracts of liver and stomach tissue for oral use. In 1930 liver extract was first given intramuscularly and subsequently this form of treatment has become increasingly popular.

At present there are several types of treatment possible and a variety of potent extracts available, therefore an effort should be made to formulate a plan of treatment that would be most effective in the majority of cases. This is necessary because notwithstanding the frequent formulations of Minot, Murphy, Sturgis and others there are cases of pernicious anaemia that receive inadequate treatment. These cases fail to have a satisfactory blood response; relapse after maintaining a normal blood count for a period; continue to have unpleasant gastrointestinal symptoms, and show progressive damage to the central nervous system.

## PRINCIPLES FOR ADEQUATE TREATMENT

Effective treatment of pernicious anaemia may be summarized as that treatment which results in a maximum reticulocyte response, the shortest possible remission and maintenance of the red count level at 4,500.00 or above in women, and 5,000,000 or above in men. For elucidation the principles may be discussed under three headings, the reticulocyte response, the remission and maintenance.

*Reticulocyte Response.* The reticulocyte response is the term used to describe the shower of reticulated red cells that follows adequate treatment. The reticulocytes may be found by placing a drop of an alcoholic solution of brilliant cresyl blue on a cover slip and allowing it to evaporate. The stained cover slip is then inverted on a piece of glazed paper and lightly polished until there is a copperish glaze to the stained side. The blood is then smeared in the usual way and counterstained with Wright's stain. By microscopic examination it is possible to determine the percentage of reticulated cells in 1000 red cells. Normally there is in the neighborhood of 1% in the blood stream. However, with adequate treatment there is a rise in the percentage about the fourth or fifth day. Usually the peak of the rise is reached in a week and this is followed by a rapid fall.

A failure to observe the reticulocyte response leaves the physician without knowledge as to whether the dosage is sufficient. Each case is an individual problem and one cannot rely upon the dosage recommended by a pharmaceutical house. By the use of Minots(1) and Riddles(2) formula—

$$R = \frac{0.73 - 0.2\ E\ o}{0.73 + 0.8\ E\ o}^{*}$$

one can calculate the expected rise in a given case. The lower the initial red count the higher the expected rise and the higher the initial red count the lower the reticulocyte rise. According to the formula and the experience of Riddle one should not expect a reticulocyte rise with initial red count of 3,500,000 or higher. However, this statement is not altogether correct as will be shown in the discussion of the intramuscular method of treatment.

If the reticulocyte response is not studied it is almost impossible to tell if the treatment is going to be effective before a two weeks' period because the red cells are slow to increase in number.

*The Remission.* The remission in a case of pernicious anaemia has begun once the reticulocyte response has been obtained. During the period of remission it is necessary to check the blood count once a week to notice if progress continues. Gastrointestinal difficulties are prone to arise between the beginning of the treatment and onset of the remission. A diarrhea may effect the absorption of the potent substance when given orally and may necessitate either larger doses by mouth or intramuscular injections. In cases where there are advancing central nervous system changes it is well to give half again as much as adequate dosage in an effort to hasten the remission and arrest neuroglia activity. If with the rise in red cells the hemoglobin lags behind then it is well to give iron and ammonium itrate, 4 grams a day. Otherwise there is no ndication for iron therapy.

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* R Expected reticulocyte response in per cent.

Eo Red blood count at onset of treatment expressed in millions.

Example: R for 2 million red count $= \frac{0.73 - 0.4}{0.73 + 1.6} = 14\%$.

*Maintenance of a Normal Red Count.* The period of medical observation is not ended once the remission has taken place and the count has reached a normal level. Patients with pernicious anaemia should be impressed with the fact that their condition is not unlike diabetes and that it is necessary that they continue to receive the intrinsic factor the rest of their lives and that for maintenance of good health they need stay under medical observation. For a period of a year they should return monthly for examination of the blood count. If at any time the red count falls below 4,500,000 in women or 5,000,000 in men the dosage should be increased. If unheeded there is the danger of progressive central nervous system changes.

In maintaining the normal red count it is well to imagine that there is a storehouse which it is the physician's job to keep filled with reserve supply of the potent substance. This is done in the hope that the body can utilize this reserve to care for any temporary increased need which might come with infection or disease. With a cold or infection the dosage should be increased to half again as much.

For some unknown reason there is a tendency to relapse during the spring months and at this time the dosage should be increased and the count watched.

The most frequent cause of relapse is that the patient stops coming to the physician. This is rarely the fault of the physician who is well informed as to the need of continued observation. With a return of a sense of well being the patient is careless about the daily oral dose and frequently discontinues treatment entirely with the thought that remission is tantamount to recovery. The result is a prompt relapse and frequently invalidism due to progressive nervous system changes.

With the maintenance of a normal blood count gastrointestinal features of this disease are rarely seen. Diets high in fats and carbohydrates are always poorly tolerated by these cases. Perhaps the best results are obtained with a diet which contains 80 to 90 gms. of protein with fresh vegetables and fruits in addition. In the constipated cases it is important to never give strong cathartics or purges for fear of a severe intractable diarrhea. Mineral oil and agar should be given and enemas when necessary. Dilute HCL can be given for gas and distention.

In cases with nervous system disability the maintenance of a high red count is essential. It is very rare for a case with a count of five million to show any progressive changes. When this does happen not infrequently the hematocrit will show there is still a macrocytosis and additional liver should be given to boost the red count. In some cases the normal count is 5,500,000 or even higher.

Where changes in the spinal cord have been arrested special exercises are indicated to attain a muscular balance.

*Factors That Lead to Inadequate Result.* If by careful observation of the patient it is discovered that the reticulocyte rise is insufficient, the remission inadequate, or if there is a tendency to relapse then certain factors must be investigated.

The most frequent cause for unsatisfactory results is that the dosage is inadequate. Each case has his or her individual demands to be met. An inadequate absorption or deficient utilization of the intrinsic substance necessitates higher dosage. Arteriosclerotic cases need more than the usual amounts.

A common cause for a poor reticulocyte response or a relapse is infection. All the usual foci must be irradicated. One of the most frequent sources is a cholecystitis. About 20% of all cases of pernicious anaemia have a gallbladder infection or dysfunction.

A rather rare cause is chronic hemorrhage. In such caces it is wise to do a gastrointestinal series because a small percentage of cases have papillomas of the stomach that may ulcerate and bleed.

### TREATMENT WITH LIVER EXTRACT GIVEN INTRAMUSCULARLY

The intramuscular method of administering liver extract was first described by Gasslen(3) in 1930. The first mention of the parenteral method in the American literature was an account in the *New England Medical Journal*(4) of the author's presentation of a case from the medical clinic of the Peter Bent Brigham hospital before the Harvard Medical Society. This was the report of a case that had relapsed in spite of huge doses of liver extract by mouth. At the suggestion of Dr. W. P. Murphy an aqueous extract of Lilly's 343 was given intramuscularly and an excellent reticulocyte response obtained. Since that time reports by Murphy(5), Connery and Goldwater(6) have substantiated the efficacy of this type of treatment. At the present time the trend in treatment seems to be towards the intramuscular method.

The popularity of the parenteral method is based upon the advantages that are offered. The initial response, the reticulocyte count, appears more rapidly, usually in 36 to 48 hours. This allows a more prompt evaluation of the treatment and a shorter remission. The latter is important when there is nervous system involvement. The quicker response is probably due to the fact that an extract from a given amount of liver is 30 to 50 times more potent given intramuscularly than orally.

The greatest advantage is that this method allows better control of the treatment. With the administration of a known amount the physician need not depend upon the patient's whim or remembering to take his daily dose of liver. Also with the parenteral method the patient returns at intervals to the physician's office for injection and this allows careful observation and frequent blood examinations. With this arrangement the physician has the best opportunity for giving adequate treatment. There is also the advantage that the method is relatively inexpensive.

Some recent experiences would indicate that the intramuscular method is the one of choice in cases with a high initial red count. During September, 1934, there were two cases under the care of Dr. G. Alexander Young at the Methodist hospital that had red counts of slightly over 3.5 million. Both cases had central nervous system changes. According to Minot and Riddle, reticulocyte responses should not be expected in such cases. However, it is axiomatic in the treatment of this disorder that the efficacy of treatment is reflected by the reticulocyte rise. It has been thought that the lack of response in these cases might be due to the relative small amount of bone marrow hyperplasia. In addition there is the possibility that the lack of reponses is due to the absorption of an insufficient amount of the potent substance. An attempt to answer this question was made in the treatment of these two cases. Both cases were first given 50 grams of ventriculin a day. In the case of E. E. there was no response at the end of five days so 3 cc. of Lederle's liver extract for parenteral use was given. The dose was repeated the second and fourth days, and five days after the start of parenteral treatment the reticulocyte count had risen to over nine per cent. In the case of A. M. there was no response to ventriculin at the end of eight days. At the end of that time Lederle's extract was administered in the same way and by the third day the reticulocytes had risen to 7.2%. These two experiences would indicate that a larger amount of the potent substance is necessary in cases with a high initial red count and that the need is best supplied by the use of the parenteral method. These two cases would probably have had a remission with the oral method. However, in the presence of cord changes it is important that the quickest response and shortest remission be obtained.

*Method.* The method of parenteral administration varies with the extracts and individual preferences. The experience of several years has proven the following method to be effective. Lederle's liver extract for parenteral use in 3 cc. amounts is given on the first, second and fourth days of treatment. Reticulocyte counts are done every other day in order that the reticulocyte count can be observed and conclusions drawn as to the efficacy of treatment.

After the three initial injections which will give an adequate reticulocyte rise in the majority of cases one 3 cc. injection is given once a week until the red cell count reaches 4,500,000 in women or 5,000,000 in men. The red count can be checked at the time of the weekly injection to see if the remission is progressing satisfactorily. Once the red count has reached a normal level a 3 cc. injection of the Lederle's extract can be given every two weeks for a month and if there is no indication of a relapse the injections can be lengthened to every three weeks. In cases where there is no nervous system involvement the interval may be once a month without relapse occurring. At the time of the tri-weekly or monthly injection the red cells should be counted just as the diabetic has his interval examination of the urine. If the red count has fallen then the frequency of the injections should be increased.

Other liver extracts for parenteral use may be administered. The above outline is one that has proven satisfactory with a liver extract concentrated from 100 gms. of the whole liver.

## SUMMARY

Pernicious anaemia is a disease which responds in a most gratifying manner to proper treatment. For adequate treatment certain principles must be observed. These principles have been reformulated in this paper.

The intramuscular administration of liver extract has been discussed as the most recent advance in treatment and as the method which best fulfills the principles for adequate treatment.

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# ACUTE MIDDLE EAR AND MASTOID INFECTIONS

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Acute middle ear and mastoid infections are rarely, if ever, primary. They occur as complications to the acute xanthemata, the acute upper respiratory infections, influenza, pneumonia, and other infectious diseases. Their occurrence as coincidental or terminal infections with severe gastroenteritis in infants has been a matter of much recent comment. It is important therefore that the general physician, as well as the otologist, be cognizant of the etiology, pathology, and symptoms of this disease. Knowledge of the indications for surgical intervention and more particularly of the contraindications, is equally important.

The incidence of middle ear and mastoid infections can be reduced by attention to simple physiologic rules. The etiology furnishes the clue. A small percentage, it is true, are blood borne and in these it is difficult to perceive how the incidence may be reduced. As will be subsequently shown, however, judicious and conservative handling will serve to greatly reduce the number of complications in this type of disease. The vast majority of middle ear infections are introduced through the Eustachian tube. This is particularly so in children in whom the tube is shorter, more horizontal and more patent than in the adult. The infection may gain entrance by direct continuity of tissue along the tubal mucosa or may be blown into the middle ear by blowing the nose or sneezing. The habit of blowing the nose in the presence of a cold or an acute nasopharyngitis is a pernicious one. It increases the positive pressure in the nasopharynx and is frequently responsible for the injection of infected material into the middle ear cavity. Holding one nostril closed while blowing the nose, serves to increase the pressure and enhances the possibility of middle ear infection. The nose should not be blown in the presence of an acute head infection. It is not physiologic. Natures' method of removing nasal secretion is to waft it backward to the nasopharynx. The direction of ciliary activity, even that in the anterior part of the nose is rearward. It is much more physiologic and certainly safer to snuff nasal secretion into the throat. A negative or suction pressure results. This tends to draw secretion from the tube, rather than force it into the tube. I am not convinced that any harm may result, even if large amounts of nasal secretion be swallowed.

Middle ear infections secondary to swimming are usually due to forcing water into the ear by blowing the nose. The individual who emerges from a dive, snorting to rid his nasal passages of water, is inviting ear trouble.

The removal of infected tonsil and adenoid tissue is an important factor in the prevention of middle ear and mastoid infections. It is not generally realized that enlarged tonsils may make pressure directly on the Eustachian tube through the thin soft palate and thereby interfere with its function. More important however, is the proper removal of adenoids. The ordinary adenoidectomy is a blind and unsatisfactory operation, usually leaving masses of infected tissue behind the Eustachian tubes and in the extreme vault. Even this partial removal however, has been productive of beneficial results. Complete removal under direct vision is the operation of choice. As I have repeatedly demonstrated, the Eustachian tubes and the entire nasopharynx can be directly seen and pathologic tissue removed under vision. I am certain that in the future the direct visual operation will tend to improve the beneficial results of the ordinary adenoidectomy and lessen the incidence of middle ear involvement.

There is ordinarily little difficulty in the diagnosis of an acute middle ear infection. Earache is the outstanding symptom. The pain is intense, boring, and more or less constant. A mild earache that persists for a few minutes only to reoccur at varying intervals of hours or days is not the earache of an acute otitis media. That usually represents a referred pain from the nasopharynx, pharynx, or teeth. Deafness and occasionally tinnitus are present but are over-shadowed by the intense earache. Tinnitus is prominent in certain types of acute ear infection. Deafness can always be demonstrated by such simple tests as the voice test and must always be established if the diagnosis is in doubt.

The picture of the tympanic membrane may vary from a slight injection of the blood vessels, to a marked redness and bulging of the drum with disappearance of all landmarks, depending upon the stage and severity of the infection. The habit of instilling phenol and glycerine into the ear for earache, in itself causes a redness and sogginess of the drum, frequently with exfoliation of the superficial epithelium. This so masks the clinical picture that a parencentesis is frequently needlessly performed. I have on many occasions seen second degree burns of the drum membrane and even of the canal with blister formation, from the use of phenol and glycerine. When this medication has been used, the otologist must restrain his surgical enthusiasm until he is certain that the middle ear cavity contains secretion and that the erythema is not phenol produced.

In addition to the varying degrees of involvement of the tympanic membrane, there is usually more or less tenderness of the mastoid process. This is true because the mastoid and middle ear cavities are one. The greater the pneumatization of the mastoid process the greater the tenderness. It has no surgical significance.

The indications for surgical intervention in ear and mastoid infections have undergone considerable moderation in recent years. There is still need for more serious consideration of the pathology present, before adopting surgical procedures. The middle ear cavity should be opened by a parencentesis only when one is certain that there is therein retention of purulent secretion. The old theory that early opening of an ear drum prevents mastoid infections is erroneous. It not infrequently happens that in bilateral otitis media, where but one drum is opened, the surgical mastoid develops on the side opened. Whether or not this is due to secondary infection introduced by the surgical procedures, since the canal is never sterile, can only be conjectured. Certain it is however, that when the surgeon opens a middle ear without immediate purulent discharge but with a profuse discharge in from twenty-four to forty-eight hours, no amount of theorizing can conceal the fact that the middle ear cavity was infected by the surgical procedure. With few exceptions and there are such, a drum membrane should be incised only when it is bulging with pressure and when its landmarks, particularly the short process have disappeared, and this only after the first eight hours. For during the first eight hours, the bulging may be due entirely to swelling of the mucous membrane of the middle ear, with but little secretion present. To open such an infiltrated middle ear is as illogical as to open a furuncle or abscess during the early period of its infiltration without any evidence of softening. Many supposedly bulging drums will subside. One of the best indices as to whether or not a middle ear infection will subside is the general condition of the patient. If the temperature approaches normal, if the earache has subsided, and if the patient appears comfortable, no matter what the appearance of the drum, the process will usually subside.

Another class of middle ear infections that are frequently unnecessarily opened are those with bullous or herpetic lesions on the drum membrane or canal. These are much more common than is usually accepted. They are characterized by intense earache for a few hours only, some deafness, and frequently marked tinnitus. The tinnitus persists after the earache subsides. The middle ear cavity is usually not involved, but occasionally becomes so spontaneously. This condition will usually subside without parencentesis if but given an opportunity.

There is a type of middle ear infection occurring with lobar pneumonia, often antedating the clinical picture of pneumonia. The drum has a characteristic appearance, which when recognized, directs attention to the lung involvement. The drum is lusterless, grayish, and with a dull redness of the malleus and annulus. Parencentesis may usually be avoided.

In the foregoing discussion on acute otitis media, it is not my wish to give the impression that parencentesis is not a justifiable procedure. On the contrary, where properly indicated; that is, where there is retention of secretion in the middle ear cavity, there are few surgical procedures that will give as great relief and benefit. This is a plea however, for a more judicious and conservative attitude based on a more certain recognition of the pathologic changes present before hastily resorting to incision of the tympanic membrane.

The indications for mastoid surgery are undergoing similar changes. It must be recognized that the mastoid and middle ear cavities are united and one; that where there is involvement of the middle ear mucosa, the mastoid mucosa is similarly involved. Consequently, in every case of acute otitis media the mastoid is cloudy on the x-ray film, and where the mastoid process is well pneumaticized, mastoid tenderness is also invariably present. For the otologist to open a mastoid therefore, simply because the x-ray picture of the cells is cloudy is to proselyte the x-ray film for his surgical aspirations. Early mastoid tenderness and pain, and cloudy x-ray films are not indications for mastoid surgery The argument usually advanced that early operation prevents intracranial complications is no true. To operate early in the stage of congestion while the process is still spreading, before the lymph and blood vessel channels have been walled off and before the tissues have mobilized their forces of immunity is to spread the infection rather than to limit it. It is analogous to opening a cellulitis, a carbuncle, or empyema in its earliest stages. Mastoiditis is not an osteomyelitis, for the mastoid cells are bone cells lined with mucous membrane. Several series of statistics show that the large percentage of mastoid mortality occurs in patients operated during the first two or three days of their illness. With few exceptions and they are rare, one is not justified in opening a mastoid process unless there is retention of pus. The diagnosis of hemorrhagic mastoiditis does not justify early operation. It represents merely the early stage of a mastoiditis that has yet to go on to suppuration. Friesner states that he is yet to see a surgical hemorrhagic mastoiditis.

The indications for mastoid surgery may be briefly summed up as follows: Pain and tenderness that occur in the 2nd week after the initial pain and tenderness have subsided; recurrence of fever in the 2nd week or later, if other causes are ruled out; mastoid swelling or swelling of the superior canal wall; persistent deafness; persistent discharge, past four to six weeks; evidence of bone destruction on the x-ray film.

If one of these symptoms is present, there is nothing to gain by delaying the mastoid operation. The possibility of late complications must always be considered, and when the mastoid process has undergone suppurative changes, it is far safer to operate than to delay. There is little shock to properly performed mastoid surgery. This is particularly true in adults if performed under local anesthesia. The chief hazard, as I have pointed out is to operate in the early or congestive stage. Proper consideration of this point will avoid many unnecessary mastoid operations and serve to lower mastoid mortality.

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# CONGENITAL ANORCHIA WITH REPORT OF A CASE OF UNILATERAL ANORCHIA

LESTER M. STEARNS, M. D., F. A. C. S.,
Kearney, Nebr.

The complete absence of both testicles as a congenital anomaly appears in the literature in only eleven instances and the last two so reported come from the Mayo Clinic. (Virgil S. Counseller and Maurice A. Walker, Annals of Surgery, July, 1933). Nine of the cases are reported following necropsy and two following surgical exploration.

Reports by Gruber and Meyer list 23 cases of unilateral anorchia in the literature. It is therefore because of the relative rarity of the condition that I report the case coming under my observation.

The causative factors entering into the lack of development of the testicle are all apparently matters of conjecture. The theories advanced have been (1) injuries to the embryo, (2) some congenital interference with the blood supply, (3) syphilis, (4) parotitis.

About one-half of the cases that have been reported have been associated with hernia—this being three times as frequent on the left side as on the right.

In complete anorchidism we find a total absence of the normal secondary sex characteristics—absence of beard, voice change, libido and general masculine build. These changes we do not find in the unilateral types.

The case that I am about to describe is that of a young man* of 26, the father of two children, both normal. Occupation: laborer. His past history shows nothing worthy of note other than the fact that he has had a left inguinal hernia since he can remember and his mother has told him that he was born that way.

The general examination—shows a man of medium build, well developed and possessing the usual male characteristics. Examination of blood and urine are negative.

Other than the condition presenting in the left scrotum there is nothing worthy of note.

The left half of the scrotum is the site of a hernia which is reducable and easily admits two fingers through the external ring. It is noted that the left testicle is absent and that there are no palpable masses in or adjacent to the inguinal canal. The right testicle is of normal size and consistency.

Operation: On February 7th, 1935, after a preliminary hypodermic of morphine gr ¼ a herniorraphy is done under infiltration anesthesia using novocain 1% solution. The ilio-inguinal and ilio-hypogastric nerves are blocked at a level with the left anterior superior spine and a broad lineal infiltration is made along the upper border of Poupart's ligament. Anesthesia being satisfactory the incision is made one inch above and parallel to the left inguinal canal down to the fascia of the external oblique. The superficial vessels are tied with fine catgut and haemostasis is complete. The fascia over the hernia is split and the sac exposed. The sac is quite thin walled and tears easily—it is markedly adherent to adjacent structures, fascia, pubes and scrotal tissue. The sac is opened and the contents returned to the abdominal cavity. Examination shows no evidence of testicle in the inguinal canal or within the iliac fossa. The neck of the sac is then transfixed and ligated flush with the parietal peritoneum with No. 2 chromic catgut. It is then removed.

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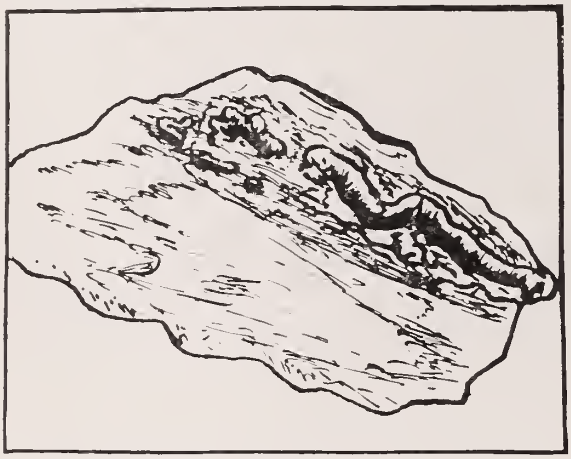
*Patient referred by Dr. R. F. Jester, Kearney.

The conjoined tendon is then sutured throughout its entire length to the shelving portion of Poupart's ligament with fine interrupted silk suture and the fascia of the external oblique is closed in like manner. A few interrupted sutures of fine catgut approximates the superficial fascia and the skin is closed with a fine dermal suture without drainage.



Hernial sac opened, showing termination of vas in several small nodules.

In the examination of the sac it is found that a poorly developed cord is attached to the inner wall by what appears to be a very short mesentary. The vessels are small and terminate about the end of the vas which is about the level of the external ring.

The distal end of the vas folds back on itself like a fish-hook and terminates in several small nodules about one to two millimeters in diameter.

Macroscopically there is no evidence of a testicle being present.

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## THERAPY OF THE COOK COUNTY HOSPITAL: THERAPY OF BEDSORES

Bernard Fantus, Chicago (*Journal A. M. A.*, discusses the therapy of bedsores as it is practiced by the attending staff of the Cook County Hospital. He states that prolonged pressure on any part of the patient's body, but most especially over bony prominences, must be prevented. Frequent change of posture is perhaps the most important. The best means of minimizing the pressure over the bony prominences is the water cushion. As backache tends to develop whenever a patient must lie on his back day after day, or even more rapidly when the lumbar muscles are completely relaxed, the cushion under the sacrum should be placed so as to preserve the "hollow of the back." To improve the circulation in the tissue of the back. the back rub is the most important aid. Alternation of heat and cold is also of value in stimulating the local circulation. Maceration of the skin from sweat, urine, fecal matter or pus must be prevented at all costs, for maceration makes the skin extremely vulnerable. The most important thing, when the patient has involuntary urination or defecation, is to place an abundance of absorbent material under him. Trauma, even a little scratch, may be the determining factor that permits the invasion of the ubiquitous bacteria. The draw sheet must be pulled tight and the body clothing kept smooth, for even a wrinkle may cause an abrasion that is followed by a bedsore. If the skin is harsh and excessively dry, it is well to rub on after each cleansing a little hydrous wool fat or a back rub salve. The liberal smearing on of ointments is not permissible, as they tend to cause maceration of the skin. The threatening bedsore is indicated by cutaneous erythema that disappears on pressure. If they have not yet been instituted, the foregoing prophylactic measures must now be developed to their full extent. In addition, the skin should be (1) hardened, if it is soft or (2) have a protectant applied to it, if it is harsh and dry. For hardening, the skin may be painted with a 5 per cent solution of silver nitrate in distilled water. This is also useful when there are small breaks in the skin. A saturated solution of alum in diluted alcohol should be applied during the back rub several times daily after cleansing. For protection, a piece of moleskin adhesive plaster serves quite well, provided the skin under its edges is examined daily to make sure that there is no irritation, or else a dressing of flexible collodion painted over the surface may keep a harsh, dry skin from cracking. The stage of unavoidable bedsore is made evident by the fact that pressure no longer drives the redness from the congested part. Efforts must now be concentrated on minimizing the damage by a strict enforcement of the principles of prophylaxis, with the addition of the tannic acid warm air treatment. If it is impossible to place the surface so as to give it the benefit of the warm air treatment, efforts should be concentrated on securing dry gangrene by the liberal use of thymol iodide or some other impalpable antiseptic dusting powder. If there is a great tendency to moist gangrene, the drying effect may be greatly increased by use of a thymol iodide-ferrous sulphate powder. When a line of demarcation has formed and the slough loosens, it is gently and aseptically removed by scissors and forceps. Moist treatment is indicated only in bedsores by the evidence of spreading infection or of retained pus. Then warm boric acid compresses must be used after any fluctuating area that is present has been incised and these continued until the slough has been shed and a clean ulcer secured. Irrigations or dressing with surgical solution of chlorinated soda hasten the separation of the slough. The continuous bath is, however, the best method of treating this serious complication and should be resorted to whenever the previously suggested measures do not secure a prompt improvement. The ulcer resulting after separation of the slough is treated according to the principles of ulcer therapy. Prescriptions for the back rub salve, alum alcohol and thymol iodide ferrous sulphate are given

## THE ORIGIN OF THE WHITE BLOOD CELLS

Bruce K. Wiseman, Columbus, Ohio (*Journal A. M. A.*, Nov. 17, 1934), maintains that while radically different positions may be and often are taken by certain extremists who have studied and contributed to the solution of the problem of the origin of the blood cells, the more important concepts involved in this biologic enigma are identical. All, or nearly all, students of the problem derive the white blood cells from the same mesenchymal structure. All, or nearly all, identify a primitive cell that becomes detached from this mother structure and serves as a blast cell for the subsequent derivation of the mature cells that are observed in the circulating blood. Certain groups believe that there is a stage between that of the primitive free cell with multipotential characteristics and the fully differentiated cells in which certain immature cells with restricted potencies may be identified and be designated as specific blast cells for specific strains or lineages. Other groups deny the evidence for the existence of this intermediate stage of multiple blast cells, defending and supporting the position that the transition from immature to relatively more mature stages may be immediate without interposition of more involved phases. The first group reserves the term "lymphocyte" for the indifferent round cell of the blood; the second group regards all indifferent round cells of mesenchymal origin whether in blood or in tissues, as "lymphocytes," thereby including under this term the "lymphocytes" and all the blast cells of the polyphyletic proponents. Very few workers, however they may differ in certain details, doubt the evidence for the existence of a single immature cell that has the inherent potencies for the production of any of the several white blood cells. Nearly all workers of both schools of thought believe that the direction of differentiation is determined or mediated by the influences of local environment and/or by a specific stimulus of unknown type. The author believes that the many and conflicting detailed explanations that have been advanced in an attempt to explain more fully the mass of experimental and objective observations pertaining to these cells in terms of life histories represent the transition phase of uncertainty between the well established facts of the present and the ultimate certainty of the future. It is probable that the development of present technical methods of investigation or the acquisition of new ones must precede the final disposition of the problem.

## HER COMPLAINT

Old Lady: "I've been expecting a package of medicine by mail for a week, and haven't received it yet."

Post Office Clerk: "Yes, madam. Kindly fill in this form, and state the nature of your complaint."

Old Lady: "Well, if you must know, it's stomach trouble."

A Britisher ate half a gallon of ice cream at one sitting and received a prize of two guineas. But how much did the doctor charge him?—Manchester Union.

Young Son—"Father, I think it's awful. The baby is ten months old and hasn't a tooth yet—and you a dentist."

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## WE REJOICE OVER THE RECENT ANNUAL MEETING

It is interesting to speculate on what forces brought out the largest attendance of all time to the meeting of the State Medical Association, May 14 to 16, at Omaha.

With an unusually well balanced program, there had been a studied effort made to so schedule the program as to keep up continuous interest by arranging a varied program together with group lunches and group dinners featuring after-lunch and after-dinner speeches on topics of the hour in medicine and medical economics.

The mechanical and artistic arrangement of the printed program varied from that in use for some years and was calculated to more readily attract the eye of the doctor to the feast of good things offered.

Physicians affected by the economic stress have remained at home more than usual during recent months and were ready to grasp the opportunity to attend the annual meeting for a few days of relaxation from the daily grind and forget their misery.

But undoubtedly the most potent factor is an awakening of the profession to the fact that with state medicine staring them in the face, solidarity of the profession is needed and physicians must be men and arise in their might through organized medicine to meet the issue and follow it to defeat.

The attendance at the annual meeting reached 488, an all time record, and the attendance at the program sessions was constant and part of the time reached the capacity limit of the assembly room.

A splendid spirit of optimism prevailed about the meeting, perhaps in no small measure due to the generous rains then daily falling over an erstwhile drouth striken West, a portend of the dawn of better days for our agricultural state.

The statement immediately preceding is justified by the fact that the House of Delegates after a vigorous discussion in which the needs for greater activity in medical organization were set forth and in which a spirit of militancy against social medicine was developed, the House voted to increase the annual dues from five to ten dollars beginning with the year 1936.

When men swear by the gods that they will militantly meet the threats confronting them, they mean to do it.

### THE SCIENTIFIC SESSIONS

The first half day's program was wholly devoted to Pediatrics and the last half day's program to Obstetrics, which worked out beautifully, while the four intervening sessions, Tuesday afternoon, Wednesday all day and Thursday morning, were given over to varied topics in medicine and surgery while a "Special Cancer Hour" at the end of the first day's program provided a new feature that added interesting variety.

The guest speakers brought many newer ideas to the profession and added tremendously to the program. Dr. Irvine McQuarrie of Minneapolis told of the new developments in the field of carbohydrate metabolism; Dr. F. A. Coller, Ann Arbor, stressed the water balance in surgical patients; Dr. Oliver J. Fay, Des Moines, discussed medical versus political control of medicine; Dr. B. L. Wyatt, Tucson, brought a message of hope for the arthritic by intelligent and persistent composite treatment; Dr. Willard Bartlett of St. Louis, feels that rehabilitation of the individual patient is of first importance and should take precedence over classical methods; Dr. Emsley T. Johnson, Kansas City, gave the results of his studies on toxicity of certain synthetic drugs; Dr. Russel L. Haden, Cleveland, discussed the classification and treatment of the anemias, while Dr. Joseph L. Baer of Chicago, in a beautifully clear extemporaneous lecture discussed the problems of labor, condemning much of present day teaching and practice in obstetrics, and offering better methods.

### THE BANQUET AND PRESIDENTIAL ADDRESS

The banquet and presidential address was graced by the presence of Governor and Mrs. Roy Cochran, friends and former neighbors of President and Mrs. Selby. The governor in a few remarks indicated his interest in the medical profession and spoke of the work of the legislature in session.

President Selby in a short address made it clear that in his opinion the medical profession is at the crossroads and must be up and doing to successfully combat the threat of social medicine. He stressed the need of better organization and more of it, called attention to the need of more money to carry on the necessary work to better organize the profession to attain success and indicated his determination to carry on a vigorous administration to that end. Let us hope we are approaching a new era in medical organization.

### ELECTION OF OFFICERS

Dr. George W. Covey, Lincoln, was elected president-elect; Dr. W. P. Wherry, Omaha, and Dr. John D. Reid, Pilger, vice presidents; Dr. B. F. Bailey was reelected delegate to the A. M. A., and the councilors of four districts were reelected each for another term.

### RELATED ACTIVITIES

Other related meetings held coincident with the Nebraska State Medical Association were the meeting and banquet of the Nebraska Tuberculosis Association at which Dr. H. G. Wood of the Mayo clinic gave the annual address. Dr. F. W. Heagey, Omaha, was relected president.

The Nebraska Medical Women's association held a meeting and program.

The Eye, Ear, Nose and Throat group enjoyed a dinner and program on the evening preceding the meeting of the Nebraska State Medical Association. Sixty EENT's attended. Dr. J. N. Woodward, Lincoln, was elected president.

The Women's Auxiliary meeting attended by about eighty members, consisted of a series of luncheons, addresses, a garden tour and an address by former national president of the Auxiliary, Mrs. A. B. McGlothlian of St. Joseph, Mo.

Much praise is due the program committee for their work so well done and to the local committee of arrangements for their untiring efforts to smoothen the way for all events and for the splendid entertainment they furnished.

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## LEGISLATION OF INTEREST TO THE MEDICAL PROFESSION

Thirty-four bills of interest to the medical profession were introduced into the legislature just adjourned. Few passed.

### PASSED

Of perhaps first importance was the bill passed relating to narcotic drugs, making the law uniform thereto.

The so-called Barbitol bill regulating to the sale of barbitol and other hypnotic and somnifacient drugs was passed.

Passed also was the Nurses' bill to regulate the practice of nursing and creating a bureau of education and registration for nurses.

The Dentist anti-advertising bill was passed after being shorn of an amendment providing for its application to all healing arts.

County aid for blind persons is provided in a bill passed.

### INDEFINITELY POSTPONED OR KILLED

Indefinitely postponed was the fate of the bill providing that no inquiry shall be made into the matter of insurance carried by any party litigant protecting such party against liability of any nature during the trial.

The Chiropractic bill which would have given chiropractors the right to practice obstetrics and to have allowed chiropractic schools to teach a dozen purely medical subjects was indefinitely postponed.

The Schroeder Health Insurance bill was allowed to die in committee. The intent of this bill was to create state medicine in Nebraska.

The Optometrist's bill conferring broader powers on optometrists passed the Senate and was the 63rd bill on file in the hourse when this *Journal* went to press.

The medical profession is under everlasting obligations to the Legislative Committee of the Nebraska State Medical Association for ever vigilant and masterful watching over the proceedings of the Legislature and their success in having killed or indefinitely postponed proposed vicious legislation.

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We wouldn't put it past the spinach-growers to have originated Child Health Day.—Philadelphia Bulletin.

## THE AGED, INDIGENT, PHYSICIAN

The response to our appeal in the May *Journal* on behalf of one of our number who in the fourth decade finds himself and wife financially stranded has been modest in numbers and in amounts received. No doubt the appeal slipped from the minds of many who read the same and intended to respond.

This, therefore, is a reminder that one of our aged members, a former president, is in sore financial distress and at a period of life, when because of deafness and failing eyesight, he is unable to follow his calling.

Let us each render a little assistance and smoothen the way for our less fortunate fellow.

## EYE, EAR, NOSE AND THROAT GROUP DINNER

The twenty-second annual meeting of the Nebraska Eye, Ear, Nose and Throat Society, was held at the Fontenelle Hotel, Omaha, May 13, 1935, about sixty members attending. The dinner at six-thirty, was followed by the scientific program.

The first paper was by Dr. Frank E. Burch, of St. Paul, Minnesota, Professor of Ophthalmology and chairman of the department at the University of Minnesota. His subject was, "Detachment of the Retina."

The second paper was by Dr. Dean M. Lierle, Iowa City, Iowa, Professor of Oto-Laryngology and chairman of the department at the University of Iowa. His subject was "Wittmack's Theory of Pneumatization of the Temporal Bone."

The officers for the coming year are: Dr. J. M. Woodward, Lincoln, president; Dr. D. D. Stonecypher, Nebraska City, vice president; Dr. John C. Peterson, Lincoln, secretary-treasurer.

## COUNTY MEDICAL SOCIETY BULLETINS

New county medical society bulletins have made their appearance in various parts of the United States, some in Indiana. With the exception of a few pages, they are all alike. They are rather pretentious sheets, carrying about thirty-six pages, with a generous amount of advertising, much of which is foreign to our state. The bulletins seem to be a commercial proposition: they are published by an out-state concern, and the greater portion of the reading material also comes from outside the state. It reminds us very strongly of the fillers used in country newspapers, and we do not mean to infer that the material is without value, but that it simply is in no sense local, and can only be regarded as filler. It is to be regretted that these highly commercialized county society bulletins have made their appearance in Indiana. There is little of the personal element in them, and there is little that they can accomplish. It is simply another "split" for advertisers to make in their set appropriations, meaning that there will be a little less appropriated to present established magazines. Medical journals are dependent upon their advertising patronage. *The Journal* could not carry on if it had to rely wholly upon the annual subscription allotment of two dollars per member. *The Journal* is your journal, and we believe that it serves a mighty important assignment in the medical affairs of Indiana. We believe that we have the right to the fullest support from component medical societies, and we also believe that full measure of support is not rendered by those county societies who use commercialized bulletins.—*Indiana Medical Journal.*

In Nebraska the county medical society bulletins have not yet affected state medical journalism. So far as we know there have been but two such ventures and but one exists now and is beyond reproach.

It is easy to see, however, that such bulletins might become a menace to state medical journalism.

## MEDICO-LEGAL

### BLOOD GROUPING TEST FOR NONPATERNITY

The increasing importance and reliability of blood grouping tests for nonpaternity was recognized when Gov. Herbert Lehman of New York signed a law(1) late in March requiring every man, woman and child to supply sample of blood for such tests when indicated in lawsuits. New York is the first state to officially recognize the tests, although individual judges in other states have already accepted blood tests as true evidence.

The courts in this country have been slow to admit the reliability of evidence obtained by determining the blood groups in humans. Although the groups were discovered by Landsteiner(2) in 1900, Heise(3) stated in a recent article that American literature failed to record a single case where a judge handed down an opinion as to the value of evidence obtained by blood grouping.

There has been a more ready acceptance of the reliability of blood grouping tests abroad. It has been established in Europe by more than 10,000 paternity cases alone. According to Smith(4) the German and Austrian lower courts, especially in suits for maintenance, have recognized the value of such evidence in about 1000 cases. The Ministry of Justice in Würtemberg and in Bavaria have recommended the application of the test. Recently a Hamburg court granted a divorce upon evidence furnished by blood grouping. In a conclusion(5) of the Supreme Italian Court of Cassation (Lattes, Individuality of the Blood, pg. 254) the following appears:

> "As regards the reliability of the results obtained by this method the latest studies and investigations show that though the determination of the blood groups affords no positive evidence for a declaration of filiation in a given case, it does, on the other hand, furnish incontrovertible evidence for the exclusion of this relationship when the child's blood group does not agree, according to a definite scheme, with that of the supposed father."

The value of the blood grouping test has been much increased by the discovery of the additional agglutinogens M and N in human blood(6). The Landsteiner classification of 1926 in which human bloods are divided into groups O, A, B, and AB, is now widely established and generally accepted. These letters correspond to the Moss groups 4, 2, 3, and 1, respectively, the classification commonly used for transfusions. Now, in addition to the four groups of Landsteiner, it has been proven that every person's blood contains either M, N or MN. Everyone has one of these three additional factors in addition to agglutinogens A, B, and O. The practical importance of the new contributions consists of the increasing number of instances in which a definite decision can be given concerning nonpaternity.

One of the misunderstandings encountered in this type of medico-legal work is the belief that blood grouping will determine parentage. It cannot be too strongly emphasized that only nonparentage can be proven. If the blood group of the child indicates that it has agglutinogens that could not come from the mother and the alleged father, then it can be definitely stated that a particular person could not possibly be the father. Because of the preponderance of two of the blood groups it has been possible in only about one-sixth of the cases of false accusation of paternity to disprove the charge. Schiff(7) in 1929 collected 5,584 cases in which blood grouping tests were done in cases of disputed paternity in Germany, Austria, Denmark, Sweden and Switzerland. Had all of the accused men been innocent, only 16% could have possibly been proven innocent by methods in vogue. Actually only 8% were so proven. With the added factors of M, N, and MN it is estimated that one out of every three cases of disputed paternity can be solved.

—B. Carl Russum, Omaha.

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## SOME NEBRASKA PIONEER PHYSICIANS: DR. GEORGE L. MILLER

One of the most colorful characters in early Nebraska medical and political history was Dr. George L. Miller, who came to Omaha with his father in October, 1854, when the population was twenty. Dr. Miller was born in Booneville, New York, in 1830, was graduated from the College of Physicians and Surgeons of New York, in 1852, and began practice in Syracuse from which place after two years he came to Omaha. His first home and office in Omaha was located at about Eleventh and Farnam Streets, and consisted of cottonwood boards and was without floors or windows.

His first patient was that of a papoose who unfortuntely died.

In June, 1855, two steamboats loaded with soldiers came up the river bound for the Dakotas to punish the Indians, reached Omaha.

The surgeon who was to have accompanied them failed to reach Fort Leavenworth in time to join the expedition and Captain Turnley called upon Mark W. Izard, then federal governor of the territory, for information about a young physician, of whom he had heard mention at the "Lower Council Bluffs Landing" of that day. Governor Izard said that it was a case of Hobson's choice, as there was only one physician available, Dr. George Miller.

Dr. Miller was asked to accompany the expedition and assured he would not be absent from home more than ten days. The journey took 24 days. A good many persons were ill and the doctor had to be transferred from one boat to the other, often in the darkness of the night, to attend the sick.

Dr. Miller later became a man of affairs in Omaha and abandoned the medical profession. He was chief clerk of the first territorial legislature, in 1855; served four years in the territorial council; was sent to Washington as special agent for the council on some important matters; he had much to do with the location of the Union Pacific bridge; fought to retain the capital at Omaha. He established the Omaha Herald in 1865, and edited and conducted it for twenty-five years, when it was sold to the late Senator Gilbert M. Hitchcock who consolidated it with the Omaha World as the World-Herald. He became a nationally known Democratic politician and during the Cleveland regime was mentioned for a cabinet position, but not appointed. He was prominent in many activities in Omaha. He died at the age of ninety years.

## WAUNETA PHYSICIAN FIFTY YEARS IN PRACTICE: DR. HARRY H. GROSBACH

While it is not given to many physicians to practice medicine fifty years, yet there are indications that the number in Nebraska who have had fifty years of service, is increasing somewhat. The history and age of the state account for this as one may figure out.

We present a half-tone of Dr. Harry H. Grosbach, Wauneta physician, who was born in Indiana in 1864, attended public school and the Lexington, Indiana, Academy, studied medicine under a preceptor and as a reciprocating task kept the office fires burning, attended the Eclectic Medical College of Cincinnati and was graduated therefrom in 1885.

A year later he located in Chase county, Nebraska, and has been in continuous practice there since that time.

As a pleasing and profitable diversion, Doctor Grosbach has always been interested in farming and stockraising.

Dr. and Mrs. Grosbach have three children and a number of grandchildren.

Dr. Grosbach is an active member of the Southwestern Nebraska Medical society and, of course, the Nebraska State Medical Association.

The Wauneta community will tender the Grosbach family a celebration on June 3 in honor of the doctor's fifty years of medical service and the celebration promises to take on the appearance in decorations and in the old time picnic dinner, the spirit of fifty years ago.

DR. HARRY H. GROSBACH

*The Nebraska State Medical Journal's* heartiest congratulations!

## EDITORIAL PARAGRAPHS

The Omaha-MidWest Clinics for 1935 will open October 29.

Late reports indicate that scarlet fever immunization is still unsatisfactory.

Too much attention is paid to standard weights and not enough to hereditary traits.

Sauer's vaccine for whooping cough is given to babies as early as the age of six months.

The American Public Health Association will hold its annual meeting at Milwaukee, October 7 to 10.

Eleven states now have basic science laws. Nebraska was the second or third state to enact such a law.

The death by taking poison, of a physician's invalid wife, is a particularly distressing matter to contemplate.

Getting down to statistics a speaker at the annual meeting stated that but 4% of practitioners take postgraduate work.

The Superior Court of Cook County, Illinois, has decided in a specific case that corporations cannot practice medicine.

Fresh meat on the highways for breakfast every morning is probably the reason for the increase of the crow population.

No pride is taken by the organized profession of Nebraska in that a member involved in concealing stolen property has landed at the penitentiary.

The American Proctological Society will hold its annual meeting at Atlantic City June 10 and 11, preceding the scientific sessions of the American Medical Association.

The proposition that compulsory immunization of children against contagious diseases before entering school should be practiced was advanced at the recent annual meeting.

"The Cancer Problem Through the Ages," was discussed by Dr. M. G. Seelig, St. Louis, investigator of cancer, at the Nebraska University College of Medicine recently.

In the southern part of the state a person who has been practicing medicine in a desultory manner since 1877, was haled before the court for practicing medicine without a license and fined.

We rejoice with the author that the *International Medical Digest* for April, 1935, abtracted the article of Dr. John C. Sharpe on Hyperchromic Anemia, published in the *Nebraska State Medical Journal* for March, 1935.

A parchment diploma issued by the College of Physicians of Philadelphia, (the immediate predecessor of the University of Pennsylvania,) issued in 1784, and bearing the signature of Benjamin Rush was recently found in Omaha among some old books and documents.

An innovation in surgical sutures is ribbon gut, a flat absorbable ribbon of untwisted gut approximately 5/8 inch wide and 18 inches long. It was developed to provide an absorbable ligature which will afford broad support to tissues. It is threaded on a special ribbon gut needle.

Cod liver oil has fallen from its high estate as an antirachitic. Many other fish oils, notably mackerel, tuna, sea-bass and swordfish have from a hundred to one hundred and forty times more of these vitamines than cod liver oil according to Dr. Charles E. Bills in a paper given before the American Society of Biological Chemists.

A memorial service honoring the late Dr. Byron B. Davis, Omaha surgeon, was held at the Nebraska University College of Medicine, May 18. Dr. Irving S. Cutter, former dean of the Nebraska University College of Medicine and now dean of Northwestern University College of Medicine, Chicago, gave the principal address.

Another Nebraska physician—Dr. T. P. Livingston, Plattsmouth,—has passed the fiftieth milestone of practice and we regret that we were unable to get the needed cooperation to prepare and publish a narrative in connection with the event. The lay press, notably the *World-Herald*, published a fine editorial on the event under the heading "The Family Doctor."

We have read with much interest two books that appeared within recent weeks: "The Memoirs of a Small-Town Surgeon," by Dr. John Brooks Wheeler of Burlington, Vt., and "Fifty Years a Surgeon," by Robert T. Morris of New York City. Both cover the varied phases of the transition period of medicine and are very readable.

We read that Hill believes that two-thirds of all cases of infantile eczema are allergic; that Balyeat places allergy at 76.6%; O'Keefe and Packman found it in 28%; Bivins in 69%; Bauer in 80%. Varied as these findings are they should impress the practitioner that allergy is a factor in most cases of infantile eczema—possibly in all cases.

The American Medical Association will hold its annual meeting at Atlantic City, June 10 to June 14. The House of Delegates convenes on the tenth and the scientific assembly will open at 8:30 p. m. on the eleventh. To get a round trip rate ask local agent for a receipt on purchasing ticket for Atlantic City. Your receipt will be visaed at Atlantic City to enable you to purchase return ticket at reduced rate.

Antitoxin, like whiskey, improves with age says the *Pennsylvania Medical Journal* for April. The question of stale diphtheria antitoxin was investigated by the U. S. Public Health Service following some deaths after using antitoxin rated as stale as compared with fresh antitoxin. Samples from the same lot as that which was complained about as stale, were used in the investigation and the samples were found fully potent.

In a number of Nebraska cities one "Dr. Neal L. Niblack" has been advertised to appear to give diagnostic clinics and physicians have wondered who and what about Niblack. We learn from

*Minnesota Medicine* for May that the Niblack clinic appeared in Windom, Minnesota, and that on investigation it was learned that one of the persons connected with the clinic is not a physician but referred to himself as a "technician" in the employ of Dr. Niblack's clinic of Lincoln, Nebr. The "technician" operated the "Hemodiomagnometer." With this appliance "it is unnecessary for the patient to remove any clothing or to be asked a single question before the examination. After the examination is complete, you will be told where and what your ailments are." The American Medical Directory's most recent edition does not give the name of "Neal L. Niblack." It is probable that he is a cultist if he is licensed in this state.

## OBITUARY

**Henry M. Fitzgibbon**, Omaha, Nebr.; native of Missouri Valley, Iowa; Creighton Medical College, 1908; did postgraduate study at London, Berlin, Vienna; in medical corps during the World War with two years service in France, returning with the rank of Major; in practice in Omaha since graduation with the exception of period served in the army; on staff of St. Joseph's and St. Catharine's hospitals; a member of various civic organizations; member, Nebraska State Medical Association; died May 8, 1935, aged about fifty-two years.

**Thomas A. Lynch**, Omaha; Creighton Medical College, 1931; member, staff of St. Catharine's and St. Joseph's hospitals; died of streptococcic infection, April 30, 1935, aged about thirty years.

## TUMOR CLINIC ANNOUNCEMENT

Surgeons, Pathologists and Radiologists who are interested in forming tumor clinics in their hospitals are invited to attend the two-day cancer conference to be held at St. Joseph's hospital, Omaha, Nebraska, during the first two days of the Catholic Hospital Association meeting. Various phases of the cancer problem, which is becoming of increasing importance every day, will be discussed.

The scientific session will be conducted by Dr. Chas. F. Geschickter, from Dr. Bloodgood's Surgical Pathological Laboratory, Johns Hopkins Hospital and Medical School, Baltimore, Maryland. The microscopic features of some interesting and instructive cases, following the method used at the quarterly meeting of the American Association for the study of Neoplastic Diseases will be given. This meeting will be for physicians only and will be well worth attending and especially instructive to the physician upon whom the responsibility of the care of the cancer patient is falling today, namely the surgeon, pathologist and radiologist.

The conference open Monday, June 17th, at 9 a. m. There will be a registration fee of $3.00 (or $5.00 if a stenographic report of the meeting is desired.) For further information write or call Dr. James F. Kelly, Chairman, Tumor Clinic, St. Joseph's hospital, Omaha, Nebraska.

"How did you break your leg?"

"I threw a cigarette into a man hole and stepped on it."—Colgate Banter.

## TUBERCULOSIS ABSTRACTS

### LARYNGOPULMONARY TUBERCULOSIS

Tuberculosis of the larynx is usually secondary to pulmonary tuberculosis. Cases with a so-called primary laryngeal lesion when sufficiently and properly investigated almost invariably reveal a primary focus of infection in the lungs. The author's observation has been that laryngeal tuberculosis occurs only in cases of pulmonary tuberculosis which at some time in the course of the disease have a positive sputum. Laryngeal tuberculosis is highly improbable in cases in which the pulmonary lesion has become definitely arrested.

### DIAGNOSIS

The diagnosis of laryngeal tuberculosis is made on the basis of the usual objective pathological findings in the larynx, but only provided a diagnosis of pulmonary tuberculosis has been established. A laryngologist should have a complete report of the chest findings before definitely arriving at a laryngeal diagnosis. And his examination should not end with the larynx. Of course tuberculosis patients may also have non-tuberculous lesions in the larynx.

### PROGNOSIS

Both the (a) character and the (b) extent of the pulmonary condition influence the fate of the laryngeal lesion. (a) If the pulmonary lesion is of a severe and rapidly progressive type the prognosis of the laryngeal lesion is necessarily poor no matter how slight it may be. On the other hand if the pulmonary lesion is of the productive type even severe laryngeal lesions often heal. (b) The less advanced (pulmonary) cases always present a better prognosis than those in the advanced stages.

Aside from the pulmonary condition the prognosis in the acute type of laryngeal lesion should always be guarded. The acute lesion may become peracute with rapid destruction of the tissues of the larynx and with perichondritis. When complicated by tuberculosis of the pharynx, soft palate and tonsils, as is often the case, the patient dies within a few weeks from inanition and severe toxemia.

The disease may run a less severe course with a slight tendency to fibrosis. These patients usually suffer from hoarseness or aphonia and irritation in the larynx with constant desire to expectorate. If dysphagia occurs the prognosis is generally unfavorable. In sub-acute cases lesions are more amenable to local treatment and when other factors are favorable the prognosis is good. The chronic type is most hopeful; the voice may remain affected, but the length of the patient's life is probably not curtailed.

Other factors influencing the prognosis are location of the lesion, time of diagnosis, character and promptness of treatment, intercurrent disease, and the general condition of the patient.

### TREATMENT

The treatment of laryngeal tuberculosis is chiefly the treatment of the lung lesion. The conservatism which still governs the treatment of pulmonary tuberculosis applies especially to tuberculosis of the larynx. Surgical procedures practiced on the tuberculous larynx have been almost entirely abandoned. While the scope of thoracic surgery is becoming wider, surgery of the larynx is now being limited to the exceptional cases.

The treatment should be (1) preventive; (2) general, or indirect; and (3) local, or direct.

(1) Every patient with active pulmonary tuberculosis with a positive sputum should be considered a potential case of laryngeal tuberculosis. There-

fore, every measure designed to arrest the pulmonary lesion helps to prevent laryngeal tuberculosis. Collapse therapy, the author believes, successfully applied in carefully selected cases, invariably prevents the occurrence of laryngeal tuberculosis. In 5,382 cases of pulmonary tuberculosis in which collapse therapy had been employed in various parts of the United States, laryngeal tuberculosis developed in only twelve cases; and in these twelve cases the collapse was inadequate to arrest the disease.

Abnormal conditions in the upper air-passages, such as nasal obstructions, inflammatory conditions in the naso-pharynx, diseased tonsils, should be corrected. Excessive use of tobacco and excessive use of the voice will often cause a catarrhal condition, thereby lowering the local resistance of the larynx.

(2) Each case should be individualized and the pulmonary lesion should be given intensive study. Bed-rest is still our mainstay, but we now have in addition collapse therapy. Heretofore, laryngeal tuberculosis was considered a contraindication of collapse therapy. The author feels convinced that the presence of laryngeal tuberculosis should never be considered a contraindication of collapse therapy. He believes on the contrary that laryngeal tuberculosis makes the indications for this form of treatment so much more urgent. No effort should be spared to build up the resistance of the patient by the usual methods.

(3) Vocal rest is of primary importance in the local or direct treatment, especially if the laryngeal lesion is of the acute or subacute type. Chronic lesions do not seem to be harmed through the moderate use of the voice.

Cauterization, the method of choice, especially when the lesion is localized, promotes fibrosis and healing and often relieves pain. The cases that are suitable for cauterization are few, but a large proportion of them are cured. When cauterization is insufficient to relieve dysphagia, nerve blocking with alcohol gives relief for several weeks or months.

Heliotherapy has been reported successful, but the evidence at hand is not convincing. Mental suggestion may account for some good results. The method is not without its dangers and, on the whole, unnecessary in a well ordered sanatorium. Local medication is of slight value. Sprays, consisting of menthol, oil of chaulmoogra, and albolene will often relieve the patient of discomfort in the larynx and may be used freely by the patient himself.

### STATISTICAL SUMMARY

"A group of 500 cases of pulmonary tuberculosis was examined twenty years ago. Whereas, the incidence of laryngeal tuberculosis in 1914 was 25.6 per cent, the incidence in 1934 was found to be 14.6 per cent.

"This pronounced reduction in the frequency of the occurrence of laryngeal tuberculosis can readily be explained by the improved methods of diagnosis and the consequent earlier application of treatment; also by the improved methods of treatment. Whereas collapse therapy was not employed in any of these cases in 1914, it was employed in 20 per cent of the cases of the present group."

Laryngopulmonary Tuberculosis, Julius P. Dworetzky, Am. Rev. of Tuber., April, 1935.

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### AUXILIARY NEWS NOTES

Mrs. C. C. Tomlinson, newly elected president, outlined auxiliary policies in her opening address at the business session at Hotel Fontenelle May 16. Discussion of plans for the coming year followed. Mrs. Miner, outgoing president, in a short talk suggested more extensive personal contacts as a means of promoting the interests of the auxiliary.

Thirty women braved cloudy skies to attend the noon luncheon at the country club but the sun came out in the afternoon for the lilac-and-tulip-time tour of some of Omaha's most beautiful gardens.

Officers whose terms began Thursday are: President, Mrs. C. C. Tomlinson, Omaha; president-elect, Mrs. J. M. Woodward, Lincoln; 1st vice president, Mrs. Earl Farnsworth, Grand Island; 2nd vice president, Mrs. C. W. Pollard, Omaha; secretary, Mrs. Herman Johnson, Omaha; treasurer, Mrs. Elmer Hanson, Lincoln; publicity committee, Mrs. A. P. Overgaard.

(Fuller report of Auxiliary meeting in July issue.)

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### WOMEN'S AUXILIARY

Nebraska's Health Education Report to Board, May, 1935.

I am exceedingly gratified because of the response from the Auxiliaries this year. It has been easier than in former years, due I am sure, to the outline, which gave the leader something definite to follow. A leader gets discouraged at a lack of enthusiasm on the part of her group. Next year remember that it is your auxiliary and your leader has been begged to take the rsponsibility of guiding you in the work outlined in our health program. My conversation with individual members of auxiliaries showed me that we are becoming more sure of our line of procedure. If no more was done this year than just read the outline it gave us a health consciousness we needed to start us out on another year hopeful of accomplishing one or two objections. If an auxiliary with scattered membership does one of the programs outlined, it will be in a fair way to do two or more another year. Each auxiliary should select the thing most necessary to be done at that time in that community. It may be milk or blindness, meningitis or county and city health services. If nothing seems of utmost importance then you should select diphtheria prevention as your study. The A. M. A. is stressing that need this year.

I will tell you some of the reasons why I am only not discouraged, but am pleased. Every auxiliary sent me a report. One (Mrs. W. H. Harvey, Dawson County) said no auxiliary organization was in existence but that the wives met with their husbands. I am sure that some of them in that locality are doing our auxiliary work without organization. One said the auxiliary was scattered over so many counties no united program was possible. Upon investigation I found that the auxiliary was meeting in groups in different towns. They assisted in the T.B. seal campaign, had programs on different diseases and gave aid to the Health Day program and the Pre-school Round-up. Next year each group will take up one phase at least of our study outline and follow it through, so I am satisfied that **Six County** Auxiliary - (Mrs. John Reid) is a going concern as it always has been.

**Tri County** (Mrs. H. W. Benson) is a splendid example in coordination—The Red Cross Chapter, the T. B. Association, the P. T. A., the Auxiliary all helping to educate the people in prevention of illness, and how to get proper attention given to illness. It may not be the job of the auxiliary to start these things but it certainly is our job to be in some of the organizations, knowing the plan of each one thoroughly, and also knowing where to get the correct information regarding any health measure that is suggested. No excuse exists for not being able to give the information for each doctor's wife should have access to one of several publications—The A. M. A. Journal, Hygeia, of which enough has never been said yet, the State and County bulletins, and many A. M. A.

publications, which may be had for the asking. The Auxiliary Hand Book is of incalculable value.

**Hall County** (Mrs. J. G. Woodin) is always a joy to a committee chairman of the Auxiliary. They do things necessary in the county and follow an outlined course too.

**Otoe County** (Mrs. John Gilligan) is composed chiefly of young women with many duties. Yet they have helped the hospital, and the needy to such an extent that the public are aware of their existence as an organization. We should give as much time as we can spare to our far off auxiliaries. I have great hopes for the future of **Lincoln County** (Mrs. O. F. Heider) for I am sure there is the nucleus of good group work.

**Lancaster** (Mrs. Everett Angle) is an auxiliary primarily interested in tuberculosis. They have an advantage over some of us in having the State Health, Child Welfare, Public Health Nursing Service and the State Relief offices there. Much use could be made of these as they proved by making a contact with the Nursing Service. Such contacts are of benefit to any group.

**Richardson** (Mrs. C. L. Hustead) is the auxiliary with the traveling obstetrical kit, and you may be sure the ones who use it know to what perfection a women's medical auxiliary may reach. That is a regular service. This year they put on a Xmas seal pageant cooperating with the Woman's Club. There were talks on tuberculosis and other medical subjects. They studied the 4-H Club work and have agreed to aid the clubs in their program of physical examinations.

**Douglas County** (Mrs. J. J. Keegan) gave a Xmas Seal Pageant cooperating with the Nebraska Tuberculosis Society. Posters for this pageant and the one given by Richardson County were loaned by Miss Katherine Shattuck of the Health Conservation League of Kansas City. The idea of the seal pageant originated with her.

One program was a report of causes of blindness and its treatment. A film, "The Seeing Eye" was shown.

Another meeting was spent on a report of a survey of the milk situation in the country. Because of the completeness of this report by Mrs. Grodinsky, the Consumers Council have asked for an ordinance requiring better inspection of milkers and milk handlers. (We can't get it because more inspection means more laboratory workers, which means more money.)

At our last meeting the history and treatment of diphtheria were reviewed, and a survey reported of our local conditions regarding incidence and treatment.

Many auxiliaries report aiding in the Pre-school Round-up. The P. T. A. is the logical group to push this project, but the auxiliary should ask for a chance to help. We should join the P. T. A. for the purpose of aiding in their health campaigns and be ready to help in formulating the round-up plan. The purpose of the Pre-school Round-up is to make every parent aware of the necessity of an early physical examination. It is a protection for the child. The clinic is only for those who cannot go to a private physician.

The Omaha P. T. A. has registered every pre-school child as to whether he will go to a physician or to a clinic. The Auxiliary is to register the child on the blanks furnished the P. T. A. by the A. M. A. when he arrives at the clinic on the Round-up day. It is our job to see that these blanks, properly filled out by the examining physician, are put in the hands of the school nurse in order to check on the child when he enters school in the fall to see if recommendations made at the clinic have been followed. The getting of the blanks to the school health department is an important service and should become the auxiliaries' part in the Summer Round-up unless the P. T. A. does it, as they do in Omaha.

As long as I am your Health Education Chairman you will hear of consolidation of City and County health services. It is the one thing which stands out above all others as the most important health plan we should have for Nebraska. No county or city can receive adequate health service until the responsibility is placed definitely in a consolidated office where co-ordination is a routine of such office. I want you to see this chart often enough to be aware of the services expected of a health office. You will soon see that neither city nor county can function alone and afford any health protection for the community. Whatever is not done that should be done harms you as well as the neighbor. Take that part of the study outline for April and find out conditions as to allocation of services and funds, and you will have many reasons for the consolidation.

Will you please turn in all unused outlines to your leader as they are bought by your state auxiliary and should be used for several years.

I should like you to use as much of the outline as you can without making a task of it, and I will give you assistance if I can.

—Mrs. C. W. Pollard, Chairman.

## THE SOCIETIES

A regular meeting of the **Omaha-Douglas County Medical Society** was held April 9.

Dr. A. S. Rubnitz and Dr. Lynn T. Hall presented a case with pathological specimens. The patient had tumors of the adrenals with metastasis to the lungs, also an anatomical anomaly of the gall bladder.

The scientific program for the evening was presented by members of the Pottawatamie County Medical Society, Council Bluffs. Dr. Rix turned the meeting over to the President of that Society, Dr. S. D. Maiden, who presented the speakers. Dr. Fred C. Beaumont presented a paper on "Management of a Gall Bladder Patient," after which Drs. Emmert and Sachs took part in the discussion. Dr. J. P. Cogley spoke on "Post-Operative Care" after which Dr. Best and Dr. Howard talked. The third speaker was Dr. Arnold Jensen, who presented a talk on "Traumatic Abdomen." Following his paper Dr. Herbert Davis spoke briefly.

At a regular meeting held April 23 the Secretary read the report of the nominating committee as follows:

President-elect, Dr. J. Jay Keegan.

Secretary-Treasurer, Dr. H. M. Jahr.

Council Members, Dr. Earl A. Connolly, Dr. M. C. Howard.

Board of Censors, Dr. A. J. Brown (to fill the unexpired term of Dr. E. L. Bridges, retiring 1937), Dr. John J. Freymann, for three years.

Delegates, Dr. R. L. Traynor; alternate, Dr. B. C. Russum; Dr. E. C. Henry; alternate, Dr. Max Emmert.

Dr. Manning, School Health Officer, spoke briefly of the health work in the schools. He stated that he had seen the health work develop from medical inspection up through the correction of defects and never had there been any objective or any accepted plans for school health work. He stated it was his belief that the primary objective of school health work should be educational and should center around the family doctor. Since the depression it has seemed possible to develop a comprehensive plan. "All health work should be through the family doctor and should be educational wholly with the family doctor as the unit from which all work starts," he continued. Recently those interested in school health have been able to get encouragement from the school administration. There is a pretty well-developed P. T. A. and through P. T. A. activity pre-school examinations have developed. The dispensaries have assisted tremendously and particularly the pediatricians. During the last two months the P. T. A. has organized health activity. Over one thousand contacts have been made in an effort to have children secure physical examinations through the family doctor. Six hundred thirty-two have expressed the intention of going to the family doctor; two hundred thirty-two the Nebraska dispensary and one hundred thirty-seven the Creighton dispensary. Were it not for this definite effort not over one hundred children would have a physical examination before entering school. Dr. Manning pointed out that the success of the whole thing depends on the physical examination given by the family doctor and it is up to the individual doctor to give the right kind of an examination for upon him depends the success of the plan.

The **Fillmore-Saline Counties Medical Society** held an outstanding meeting at Geneva, April 25, consisting first of a fine dinner; second, an entertainment by the Gypsy Chorus of twenty-five ladies in costume singing six numbers, and third, a round table discussion of the problems of the profession. The meeting was well attended.

The monthly meeting of the **Nemaha County Medical and Dental Society** was held at the Auburn hotel April 30 with a large attendance of physicians and dentists. The program following the dinner included an address by Dr. Glen Joder of Peru on "Arthritis" and address by Dr. F. C. Malony of Auburn on "Dental Surgery." The addresses were instructive and the meeting of benefit to all who attended. The society meets the last Tuesday of each month.

Three prominent Omaha physicians appeared on the program of the **Southwest Nebraska Medical Association** at McCook, May 9. They were Dr. Wm. Schearer, Dr. Joseph Weinberg, and Dr. Wm. Stokes.

Scientific papers were presented by the three men, Dr. Schearer speaking on definite disease areas and their treatment; Dr. Weinberg on chest surgery; and Dr. Stokes on tear sacs surgery. Dentists in this section were guests of the medical association at the meeting.

### HUMAN INTEREST TALES

Dr. H. J. Wertman, Milford, was reported ill last month.

Dr. George A. Clark, Elwood, was a patient lately at the Mayo clinic.

Dr. and Mrs. J. R. Taylor, Sidney, recently made a trip to California.

Dr. A. C. Stokes, Omaha, was again reelected chairman of the local Red Cross.

Dr. L. J. Sherbahn, for some time located at Benkelman, has located at O'Neill.

Dr. Olga Stastny, Omaha, was guest speaker at the Lincoln, Altrusa club, April 15.

Dr. B. C. Peace has moved from Schuyler and located at Lincoln, the family home.

Dr. Henry T. Dorwart, Lexington, was reported alarmingly ill the first of last month.

Dr. and Mrs. A. L. Miller, Kimball, have returned from a winter trip around the world.

Dr. Ernest C. Margaret, son of Dr. O. H. Margaret, Papilion, has located at Glenwood, Iowa.

Dr. T. E. Dent, North Platte, was held up and robbed on responding to a false night call.

Dr. G. G. Henning, Norfolk, spoke on "The Training of Children" before the local Kiwanis club.

Dr. Ernest Lennemann, Dawson, spent the month of May at the Cook County hospital, Chicago.

Dr. E. W. Landgraff, Omaha physician, recently passed through a serious attack of pneumonia.

Dr. H. B. Hamilton, Omaha, spoke on "Disease of Children" before the Kellom school P. T. A. recently.

Money and dope was stolen from the office of Dr. W. J. Hemphill, North Loup, recently. The guilty dope fiend was arrested.

The national conference on fever therapy at Dayton, Ohio, recently was attended by Drs. A. E. Bennett and L. E. Hanish of Omaha.

Dr. Rachel Cooper, of Normal, Ill., a former Nebraskan, visited friends at Aurora, Grand Island and other points within the state recently.

Dr. A. L. Miller, Kimball, gave the address before the graduating class of the Plainview high school, a few days ago. Dr. Miller grew to manhood near Plainview and was graduated from the local high school.

### AS OTHERS SEE US: THE FAMILY DOCTOR

A recent dispatch to The World-Herald from Plattsmouth briefly recorded the fact that Dr. Theodore Livingston had completed 50 years of medical service to that community and the surrounding countryside.

Brilliant young men and specialists in the field of medicine and surgery provide most of the news about the doctors by their progress in curing or preventing man's ills or their skill in particularly difficult operations. To them goes our high admiration for their technical achievements and scientific devotion to humanity.

But our admiration is equally extended to the "old family doctor," to such men as Dr. Livingston, who have devoted their lives and long years to the general practice of medicine. Sometimes they have turned aside from spectacular careers because they could not leave the communities in which they first hung out their shingles. They heard a call no less profoundly important than the call to specialization. They have labored, no less nobly, for their fellow men.

The family doctor becomes much more than a mere medical adviser. Often his service begins with the ushering of the new life into the world. It extends over the period of childhood's mumps and measles and poxes. It becomes a refuge of comfort and love in times of personal crisis, when the family circle is broken by the departure of one of the members for the lonely journey into the valley of the shadow of death.

Modesty and kindliness and sympathy are no less the attributes of the fine old family doctor than knowledge and skill and pride in keeping abreast of medical progress. He knows no "hours." He yields to no hardships of weather when help is sought. More often than not his books if he keeps any, are overloaded with unpaid accounts of those to whom he has ministered through the years.

Too often the family doctor never fully realizes the good he has done, nor how securely he is held in the affections of his fellows, nor how essential a cog he is in his community's life. He would be the first to thrust aside the suggestion that his life is heroic. He spends so much time helping to carry the worries and troubles and fears and problems of the other fellow, that he hasn't time to think about himself. It will be a sorry day for medicine and humanity if the time ever comes when all physicians will be specialists and none will qualify for the affectionate title of "family doctor."—The World-Herald.

## MEDICAL SOCIETY GOLF AND TRAP SHOOTING

On Monday, May 13th, at the Omaha County club about 35 golfers and a dozen trap shooters whanged golf balls and bullets over the 60 acre estate which had been well groomed for this annual event. The really hot-shot golf players were so busy entertaining the visiting firemen that most of them forgot to hit the golf ball so as you will see there are a good many dark horses that came in on the home stretch and copped the prizes. The more sensitive golfers we will admit were somewhat disturbed by the bombardment of the hunters whom we had parked all over in one corner. A few of the late arrivals had a few rain drops hit their spectacles before they got around the 18 holes and some had to shoot a few balls over because of their dimmed vision. However, most of us were safely seated in the club house, taking care of our liquid intake and were really not troubled by the drizzle. We hope that the Lincoln golfing committee can make better arrangements with the weather man next year. We understand that Dr. Clayton Andrews will take this under advisement.

A very delightful dinner was served to over 50 members of the Nebraska State Medical Association and several doctors tried their skill at games of chance after dinner. All through the 6 course event Drs. Overgaard and McGuire kept handing out prizes to the various participants and below you will see the ones who drew the lucky numbers:

### NEBRASKA MEDICAL TRAP SHOOT

| | Prize | Donor | Winner |
|---|---|---|---|
| 1. | Silver Cup | Mead Johnson Co. | Lucien Stark |
| 2. | Dual Thermometers | Beckton Rickerson Co. | Lucien Stark |
| 3. | Sport Seat | | G. A. Hoefer |
| 4. | Heat Lamp | Wilbur Medical Supply Co. | R. A. Moser |
| 5. | Game Vest | Piel Drug Co. | L. P. Coakley |
| 6. | Jack Knife | Piel Drug Co. | H. F. Miner |
| 7. | Cocktail Shaker | McKesson Churchill Drug Co. | H. F. Miner |

### NEBRASKA MEDICAL GOLF ASSOCIATION

| | Prize | Donor | Event | Winner |
|---|---|---|---|---|
| 1. | Silver Trophy | Piel Drug Co. | 1st Low Net, 18 Holes | J. F. Hyde |
| 2. | Kodak | Eastman Kodak Co. | 2nd Low Net, 18 Holes | J. S. Deering |
| 3. | Golf Liability Policy | Harry A. Koch Co. | 3rd Low Net, 18 Holes | E. L. Hustead |
| 4. | 1 Dozen Golf Balls | Friend | 4th Low Net, 18 Holes | R. P. Westover |
| 1. | Silver Trophy | Nebraska Power Co. | 1st Low Gross, 18 Holes | Paul Tipton |
| 2. | Interval Timer | General Electric Co. | 2nd Low Gross, 18 Holes | A. C. Johnson |
| 3. | Camels | O'Brien Drug Co. | 3rd Low Gross, 18 Holes | Clayton Andrew |
| 1. | Silver Cup | Brandeis Store | Seniors Tournament | W. L. Sucha |
| 2. | Hypodermic Case | Burroughs Wellcome Co. | 2nd Seniors Tournament | J. J. Hompes |
| 3. | Physicians Medicine Case | Upjohn Co. | Low Net on 1st Nine | G. A. Young |
| 4. | Park Room Lamp | Westinghouse X-ray Co. | Long Drive on 1st Hole | R. P. Westover |
| 5. | Time Clock | Beckley X-ray Co. | Close to Pin, 3rd Hole | J. W. Woodward |
| 6. | Sport Glasses | Riggs Optical Co. | Close to Pin, 7th Hole | H. F. Johnson |
| 7. | Hypodermic | Park Davis Co. | Close to Pin, 11th Hole | Frank Conlin |
| 8. | 1 Bard-Parker Knife Set | Seiler Surgical Co. | Close to Pin, 15th Hole | E. R. Hays |
| 9. | X-ray View Box | Kelley Koett Co. | Most 5's on 18 Holes | W. Thompson |
| 10. | Golf Togs | Friend | Most 4's on 18 Holes | R. Luikart |
| 11. | X-ray View Box | Buck X-ray Film | Most 6's on 18 Holes | A. P. Overgaard |
| 12. | 2 Sweaters | Thos. Kilpatrick Co. | Best Score 1-3-7 Holes | W. W. Walvoord |
| 13. | Dark Room Lamp | Wilbur Medical Supply Co. | Most Strokes, 18 Holes | I. McCarthy |
| 14. | ½ Dozen Golf Balls | John Wyeth Bros. | Best Score, Par 3 Holes | R. Bliss, H. Orr |
| 15. | ½ Dozen Golf Balls | John Wyeth Bros. | Best Score, Par 4 Holes | E. Maloney |
| 16. | 2 Thermometers | Ludmil Surgical Co. | Best Score, Par 5 Holes | S. G. Zemer |
| 17. | 1 Golf Ball | | Most Strokes, Any Hole | L. C. Knight |
| | Milk<br>Buttermilk<br>Chocolate | Roberts Dairy | Served on No. 4 Tee | EVERYBODY |

We are most grateful to the donors who provided these most beautiful trophies and even though some of us did not have a look-in, the recipients, we are sure, are most grateful.

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### BOOKS RECEIVED

ELECTROTHERAPY AND LIGHT THERAPY by Richard Kovacs, M. D., Clinical Professor and Director of Physical Therapy, Polyclinic Medical School and Hospital, New York; Physician in Charge Physical Therapy, City Hospital, New York; Visiting Physiotherapist, Manhattan and Harlem Valley State Hospitals and West Side Hospital; Consulting Physiotherapist, Hackensack Hospital and Mary Immaculate Hospital, Jamaica, New York. Second Edition, Thoroughly Revised. Illustrated with 263 Engravings and a Color Plate. Octavo, 695 pages, cloth cover. Published by Lea & Febiger, Philadelphia. Price $7.50.

*Your doctor leads a strenuous life.*
*He's working day and night.*
*He hesitates to go to bed*
*Or sit down for a bite.*
*Even big conference football games*
*He dare not try attend;*
*For sure as sin*
*When he gets in*
*They'll call him out again.*

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# CONGENITAL DIAPHRAGMATIC HERNIA IN AN INFANT WITH SUCCESSFUL OPERATION*

JOSEPH WEINBERG, M. D., and HOWARD HAMILTON, M. D.,
Omaha, Nebraska.

Congenital diaphragmatic hernia appearing in infants is almost always fatal within a year if symptoms appear within the first few months of life. When it is considered that a large proportion of cases fall into this group the importance of devising a satisfactory method of treatment is self-evident. While it is generally recognized that large defects in the diaphragm should be repaired by operation when diagnosed in childhood and adult life, there has been a reluctance to apply this surgical procedure to infants. This reluctance may be laid to the idea that infants are poor surgical risks, and to the fact that the true nature of the disturbance frequently is not recognized until after death. As late as 1922, Hume, an English authority on the subject, wrote that repair of congenital diaphragmatic hernia was not a feasible procedure, and that while such a condition might demand a herniotomy no attempt should be made to return the intestines to the abdominal cavity. Since that statement was made, several successful cases under one year of age have been reported, including those of Bettman (two cases), Donovan (two cases), Coryllos, Van Hazel (personal communication) and Johnson. To this group we add a successful case in a five months old infant.

The chief reason for failure to diagnose congenital diaphragmatic hernia is its rarity. The defect occurs most often on the left side posterolaterally and the symptoms are those due to the presence of abdominal structures within the pleural cavity. Failure to take feedings normally, dyspnea, full chest, small abdomen, tympany and absence of breath sounds on the affected side, and failure to gain weight normally, will suggest the diagnosis. Absolute diagnosis is made by radiographic examination which will show an obscure left chest with evidence of gas pockets without lung markings, and after ingestion of a barium meal will show the intestines in the pleural cavity.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

Once the diagnosis is made, operation should be performed as soon as the infant is brought to a maximum state of health by means of special feeding. In the past the fault has been to wait for symptoms of intestinal obstruction before deciding upon surgical intervention, and as a result the operation has carried a high mortality. Barrett and Wheaton in a recent review of the literature found that the operative mortality in infants is 80%, compared to 54% for all types of cases. With the application of physiological principles and early resort to operation there should be a sharp decline in the mortality percentage. In considering these statistics it must be remembered that oftentimes the diagnosis had not been made until the surgeon had entered the abdomen, and he was, therefore, unprepared to apply the principles necessary for success in the procedure. That early age is not a barrier to the operation is shown by the fact that Johnson in 1932 operated successfully on a forty-two hour old infant, and Corryllos in 1931 operated successfully on a thirteen day old infant.

There are three possible methods of approach in the operation for repair of diaphragmatic hernia; the thoracic, the abdominal, and the combined thoracic and abdominal. All of these methods have been successfully carried out in infants but it is considered by us that the abdominal approach has definite advantages in this age group. Ready separation of adhesions between displaced abdominal structures and thoracic structures is the chief advantage of the thoracic approach but these are seldom found in infants. The abdominal approach has the advantage of permitting the herniated contents to be more easily withdrawn from the thorax; also, the structures may be examined after their return to the abdomen for evidence of trauma or disturbance of circulation. Should adhesions be found, a secondary thoracic exposure may be made for their separation if they are not accessible. In all of these methods of approach positive pressure anesthesia in the hands of an expert should be available. This is to safeguard against respiratory failure during the operation and to allow inflation of the collapsed lung at the end of operation.

### CASE REPORT

C. B., a male infant, age five months, was referred to the University hospital by Dr. Paul Reed on February 4, 1935. The history states that he was a forceps delivery after prolonged labor and his weight at birth was eight pounds four ounces. A few days after his birth the mother noticed that the breathing was peculiar, especially during feeding. However, he gained weight until three weeks previous to admission at which time he appeared to have a slight cold. From then on the mother noticed that the baby showed some effort in breathing and that he nursed for a much shorter period of time than normal. During the following weeks his weight dropped from thirteen pounds eight ounces to twelve pounds five ounces. X-ray examination by Dr. Reed before entrance to the hospital showed the heart displaced to the right, and the left half of the chest "cloudy."

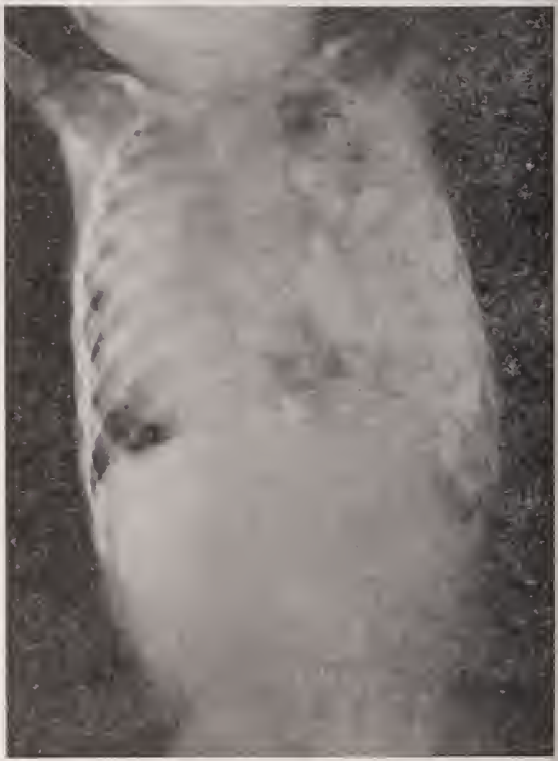

Fig. 1—X-ray examination following ingestion of barium showing displacement of intestines into thorax through posterlateral defect in the left hemidiaphragm.

Examination on entrance to the hospital showed a rather poorly nourished infant, with rapid respirations, fifty to sixty per minute. When the child was lifted by his arms he appeared to breathe with less difficulty. The left half of the chest was noticeably narrowed in its lateral dimension and deeper in its anteroposterior dimension than the right, and showed marked angulation of the ribs. The heart was displaced to the right. Breath sounds were absent over the left side of the thorax posteriorly and laterally. There was relative dullness over the left chest on percussion. The abdomen was much smaller than normal, presenting a depressed or scaphoid appearance. Fluoroscopic examination showed increased density of the left thorax with multiple air pockets and displacement of the heart to the right. Following ingestion of barium an x-ray showed displacement of the stomach and intestines into the left thorax through a posterolateral defect in the left hemidiaphragm. On fluoroscopic examination the right dome descended on inspiration while the left dome ascended, which further indicated a defect of the left hemidiaphragm. The x-ray examination was summarized by Dr. Hunt as follows:

"Ingestion of barium showed the stomach placed in the abdomen with posterior and upward extension of the pylorus. The first and second portion appeared to pass through the region of the diaphragm into the thorax. The small intestine and the ileocaecal region were found in the left thorax. Passage of barium through the gastro-intestinal tract did not appear retarded. The administration of a barium enema showed direct vertical extension of the colon which turned somewhat medially to pass through the diaphragmatic region.

"Defect of the left diaphragm with extension of the small intestine and ileocaecal region into the left thorax. No aerated lung in the left thorax. Diaphragmatic defect appears posterior."

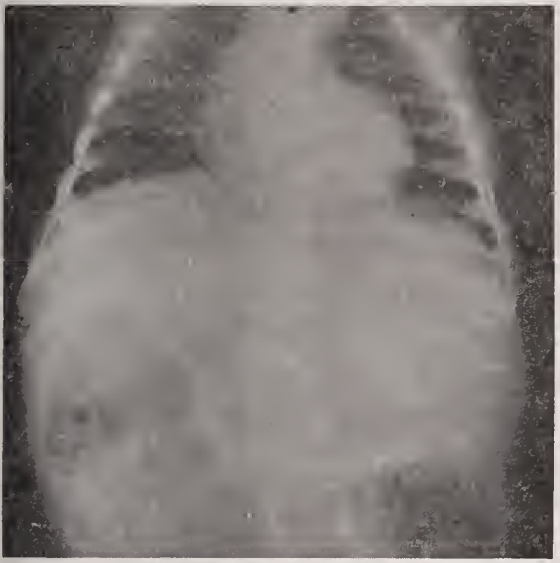

Fig. 2—X-ray examination made twenty days after repair of congenital defect of left hemidiaphragm. All of the abdominal structures remain below the diaphragm and the heart has returned to its normal position.

After formula feeding during which the baby's weight was brought from eleven pounds four ounces to eleven pounds twelve ounces, the baby was operated on.

Operation was performed on February 18, 1935. The procedure was started under local anesthesia and ether inhalation. The baby was tilted to the right with the head down, the latter to lessen the possibility of aspiration of stomach contents. A left lateral abdominal incision was made along the inferior costal margin extending from the sternum to the longitudinal spinal muscles. This gave excellent exposure of the defect in the diaphragm which was found to be situated posterolaterally. The defect was about 6 centimeters in length and 2.5 centimeters in width. The stomach, all of the intestines to the descending colon, the spleen, and the left adrenal body were in the left pleural cavity. First attempt at removal of the abdominal structures from the pleural cavity was difficult because of the suction created in the pleural cavity with inspiration and because of the obstruction made by the spleen which remained above the diaphragm despite mild efforts to dislodge it. By applying the method suggested by C. H. Mayo of introducing a rubber tube into the pleural cavity to raise the intrapleural pressure, displacement of the intestines and other structures from the thorax was greatly facilitated. At this time the baby stopped breathing, probably because of embarrassment by atmospheric pressure within the left thorax. Positive pressure anesthesia was begun with nitrous oxide and oxygen by placing a well fitting mask firmly over the baby's mouth and nose, and the respirations were resumed at once with this change. During closure of the defect the abdominal viscera were placed in a towel soaked in warm saline solution. Before positive pressure was begun the left lung could not be seen but with positive pressure it became inflated immediately so that it reached nearly its normal size before completion of closure of the defect. The hernial ring was surrounded with Oschner forcepts which acted as tractors. The defect was repaired with interrupted silk sutures. The rubber tube used to introduce air into the pleural cavity was left in until just before the final sutures were placed in the diaphragm. This allowed restoration of a negative chamber by permitting escape of air from the pleural cavity while the lungs were inflated. Because of the large size of the opening it was necessary to make use of the renal fascia to complete the closure. Following this, the intestines were returned to the abdomen and the abdominal wall was closed, using interrupted chromic No. 1 sutures for the muscle, and metal clips for the skin.

Before the baby was returned to his room 80 cubic centimeters of air was aspirated from the left pleural cavity and several inhalations of carbon dioxide and oxygen were given. The carbon dioxide inhalations were repeated at intervals of several hours for the next twenty-four hours.

There was a sharp rise in temperature a few hours after operation, but following this the convalescence was uneventful except for a mild upper respiratory infection which persisted for one week.

Water was given by mouth a few hours after operation and feedings were taken without difficulty after the first day. The weight rose steadily except for the interval during the upper respiratory infection. At the time of dismissal, four weeks after operation, the weight was thirteen pounds. Latest word from the mother, received several days ago, reported freedom from symptoms experienced before the operation and a steady gain in weight.

X-ray examination on March 6th, twenty days after operation, showed the intestines and stomach in the abdomen, and the left lung fully expanded.

### SUMMARY

In considering the treatment of diaphragmatic hernia emphasis should be placed upon the congenital type manifesting symptoms in infancy. More cases fall in this group than in any other, and it is in this group that the greatest number of fatalities occur. Most of these are left untreated either because of failure to recognize the condition or because of unwarranted fear of operating on infants. This unusual condition should be kept in mind when there are symptoms of difficulty with respiration or feeding. Operation should not be considered a last resort measure, but should be performed under ideal conditions with careful planning before obstructive symptoms are present. The case of a five months old infant successfully operated on for repair of diaphragmatic hernia is reported and the procedure outlined.

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### DISCUSSION

HOWARD B. HAMILTON, M. D. (Omaha): I have profound respect for a surgeon who successfully operates a baby of five months with diaphragmatic hernia. The chief complaints with which this baby entered the hospital were, cyanosis, difficulty in breathing and feeding, vomiting after feedings, and he was able to take only two to three ounces of food at a time. The diagnosis of diaphragmatic hernia was suggested before he was fluoroscoped. The fluoroscopic examination confirmed the diagnosis and an x-ray film after a barium meal proved it. His appearance gave one the impressison of a full chest, particularly the left side, and an empty abdomen. There was a sharp angulation of the ribs but the contour of the chest peculiarly changed from time to time, as did also the physical findings. This was undoubtedly due to the amount of gas or food which at the time was in the chest and, of course, varied. If there was air or gas in the portion of the stomach or intestines in the chest, naturally, there was tympany, or if there was fluid, the percussion note was dull.

Dr. Weinberg has given you the details of the operation. One of the interesting things of the operation was the rapid disappearance of the herniated organs from the chest into the abdomen when a rubber tube was inserted and air allowed to enter the pleural cavity. The baby was given ninety cc. of blood intravenously before he left the operating room. He was given one hundred and fifty cc. of salt solution subcutaneously in the first few hours. Shortly after he left the operating room, 5% glucose solution was given by mouth, one dram the first hour and increasing one dram every hour thereafter. A total of twenty-nine ounces of fluid was given in the first twenty-four hours. He was fed on an evaporated milk mixture in addition to the breast milk available. During his immediate convalescing he did not vomit once. One is amazed at the slight amount of gastrointestinal disturbance after so much necessary manipulation in repairing a defect of that kind. On entrance the baby weighed eleven pounds three ounces, the normal being about fifteen pounds. The day of operation he weighed eleven pounds twelve ounces and when he left the hospital, thirteen pounds one ounce.

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## EVERYDAY PEDIATRICS*

E. S. WEGNER, M. D.,
Lincoln, Nebraska.

The subject of my paper offers a very wide range. Under it one might include many things. It is my purpose, however, to call attention to a few things only. I wish to stress some very simple things which are met in the practice every day. These simple things constitute the bulk of our daily work, and therefore, are in reality very important.

If we review recent infant mortality statistics we find that natal and neonatal conditions rank first in the causes of infant deaths. From their nature many of these conditions cannot be altered. It would be unprofitable to list them, and discuss them here.

It should be sufficient to say of such as can be altered or avoided, that best results are obtained and the greatest good accomplished when physicians in a community cooperate to the fullest extent, and give to each patient the benefit of the combined knoweldge and experience that the profession of the community can give.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14, 1935.

The individual physician, because of the limited number of cases that he sees, must depend upon the published records of centers, giving opportunity to see many cases of a specific condition, for the most complete knowledge about that condition. More or less standard routine procedures are thus evolved, which when widely adopted result in great benefit. For instance, such a procedure as the routine injection of whole blood in all babies born by difficult instrumental delivery. There is a limit to the improvement which may be expected in statistics covering the newborn period.

Second among causes of infant deaths are the respiratory diseases. Perhaps we do not have sufficient respect for that condition known as the common cold. After all, the complications of common colds could often be avoided if the common cold itself received adequate attention. In the case of the infant, every effort should be made to avoid the initial infection. Adults and older children with upper respiratory infections should not contact the baby. If contact is unavoidable, as in the case of a nursing mother having a head cold, that individual should wear a mask. Nurses and doctors who have colds, even though they may seem insignificant, should wear masks while examining or handling babies. It is surprising at times to see a baby escape, when every other member of the household has gone through a siege of epidemic upper respiratory infection. This is possible only when intelligent instruction has led to intelligent cooperative response from members in that household.

After the cold has been communicated to the infant, certain definite therapeutic measures may prove valuable. Certainly we should not take the attitude that it is a self limited disease which must run its course. Frequently, I believe, it is possible to abort colds if we treat the nasal mucous membranes in the early stages. For this purpose nothing has given such satisfactory results in our own practice as has solution of argyrol 15%. Definite instructions should be given when we write the prescription: One or two drops in each nostril, so instilled as to run along the mucous membrane surface instead of dropping through into the throat. Instructions as to the position of the infant, head back, and a pillow under the shoulders, are all important. Improper instillation may result in harm rather than benefit. Then, too, duration of treatment and number of doses I believe should be stressed. My usual suggestion is three or four times daily for two or three days. If nothing is accomplished in that time, little is to be expected, and the treatment should be changed. Prolonged use of silver salts may produce drug irritation. Old solutions are prone to irritate and are not so effective as germicidal agents; therefore, we always insist on fresh solutions.

Because argyrol has a drying effect on the mucous membranes we like to follow each instillation of the drug in twenty minutes to a half hour with a drop of liquid albolene. Here again, the quantity is important. We have seen nurses actually squirt a half dropper full of oil into a baby's nostril. No wonder then, that we must be warned about the dangers of lipoid pneumonias.

Where the infection progresses in spite of initial treatment we must be governed by the course which it takes. Certain broad and fundamental principles may well be layed down. I believe it is pretty well established that although fresh air is important, there is no advantage to cold air; and infants will do much better always in an atmosphere of moist, warm air, than in cold air. If there is irritation of the throat and bronchial system linings, medicated steam inhalations are beneficial. What is used as medication is perhaps not very important so long as it is bland and soothing. Strong volatile substances that produce irritation (lacrymation is seen in some cases) should be avoided. Another caution which should be voiced when babies are placed in steam tents, is to avoid closing them in too tightly and getting them overheated. It is well sometimes to hang a thermometer in the crib, at a level with the baby's head. To me, it seems that as a rule it is best to have the kettle of steaming solution at the foot rather than at the head of the crib.

Drugs should be used according to indications for their use. Personally, I feel that we are prone to over-medicate, and yet I see no reason why we should withhold antipyretics and sedatives when they will contribute to the comfort of our little patients.

Perhaps I may be permitted to say just a word here about vaccines and other foreign proteins. I believe we should frown upon their routine use, but I am persuaded that in certain cases they have proved to be helpful. I have used them repeatedly in hospital cases where their effect could be closely followed by blood counts as well as by apparent clinical results produced.

In the case of the acutely sick infant fluids are more important than food. It would be well for us always to keep that in mind.

Third in the causes of infant deaths come conditions and diseases of the gastro-intestinal tract. However, the fact remains that remarkable progress has been made in this particular section of the combat against death. No other field has yielded more gratifying progress. What has contributed most toward our results? Two things, I believe, should be held forth particularly. First is the pasteurization of milk and the effect which this has had in emphasizing the importance of sterile foods for babies. Second, the teaching and instituting of regularity in our routine care of babies. There are those who would stress the latter above the first. In spite of the evidence of progress made due to these simple measures, we still see them ignored repeatedly by men in our profession who should be acquainted with the facts.

Fundamentals in the feeding of infants are now a part of every medical course. Their attempted repetition in this discussion would be worse than useless even though time were allotted to make that possible. I should simply like to repeat what I said at a previous appearance on a State medical program: To attempt to cover our ignorance by advising the mother who comes seeking advice, simply to follow the directions on a label or in a government pamphlet, is the best way I know of to discount the profession's influence with the laity. The man who is not sufficiently interested, or will not take the time to see that his baby patients are properly fed, should have the necessary grace to send them to a colleague who will take the time, and who is interested.

One of the problems which confronts the man who advises mothers concerning the nutritional care of their babies, is the way in which accessory food elements, particularly the vitamins, are advertised. I cannot go into detail in the matter. I should just like to suggest that to date I place little dependence in the vitamins which some manufacturer has added to a quart of milk, or has tucked into a loaf of bread. After repeated disappointments I am loath to depend on any super-concentrate; and I must therefore still depend in large measure on old mother nature and on the things which she provides. Good cod liver oil and sunshine haven't disappointed me and I find myself depending on them more and more.

Now I would not be mistunderstood. I believe some of the advertised preparations have their place, but I feel we are too quick to want to adopt the easy way; and when that has been insufficiently proved it may lead us into difficulty.

We are learning new facts constantly and will no doubt have to change our minds about things repeatedly. For instance, I have not recognized a single case of scurvy in my own practice for over ten years. I have believed and taught that an adequate amount of orange juice would prevent it. Recently in Philadelphia, I saw scurvy in an infant that had had orange juice. I was told that children's hospitals in New York, Philadelphia and Baltimore were experiencing an epidemic of scurvy. Many cases have been seen in recent months. Investigation seems to point to the destruction of vitamin C in oranges by chemicals used by the orange growers to protect their crop from insect and fungus pests. Certain gases also destroy this vitamin. One of the eastern pharmaceutical houses now supplies it in a stable form which may be given in small tablets or may even be given by vein.

Laboratory procedures which we do not use at present except on rare occasions, would in many instances add to our ability to recognize and more adequately cope with certain disease processes. It is to be remembered that some of the procedures which are of value in older individuals, for instance typing of pneumococcus, have no particular advantage in pediatrics. With simplification of laboratory methods, more and more procedures will be adopted and used to the advantage of our patients.

The question of immunizations must have increasing consideration in pediatrics. Much has been accomplished. Dr. William H. Parks tells us that forty years ago there were a hundred times as many deaths from diphtheria as there are today. However, much remains to be done. For the present, we would say that every child should be protected against smallpox, diphtheria and whooping cough. Where the water supply is in question, typhoid vaccine should be given also. Some would include protection against scarlet fever. To us the present method seems unsatisfactory for three reasons: first, the severe reactions which some of our patients have had; second, the uncertainty of protection with one immunizing course of treatment; and third, the uncertainty of the duration of immunity. Personally, I like to vaccinate my patients for smallpox at age of 6 months. At 9 months I like to give whooping cough immunization using Sauer's vaccine according to his method. At about a year I give diphtheria immunizing treatment, and my choice of material is the Alum Precipitated Toxoid which can be given in a single dose of ½ cc. I have used the commercial placental extract preparation to protect small infants and infants who were already ill, from measles. Thus far I have never been able to produce simple attenuation, that is, measles in a mild form. In every instance that I have used the extract the protection has been complete.

The practice of pediatrics is coming to be more and more disease prevention. I believe that for the first year of life a plan of care which provides for feeding and developmental supervision with immunizations, at a fixed fee for the period, is an advantage both to the physician and the patient.

### DISCUSSION

DR. JOHN H. CALVERT (Pierce): I should like to ask if Dr. Wegner has tried the Parke-Davis medication for scarlet fever?

DR. R. E. HARRY (York): The discussion of a paper of such a general subject as "Everyday Pediatrics" doubtless would be best accomplished by a recapitulation of the points brought out, and emphasizing the same. Dr. Wegner did not overemphasize the effect of cold, which is often overlooked in young children. The more common colds and complications we see, the more we are suspicious of any infection arising from a common cold. We have had good results by the use of one per cent ephedrin in normal salt or in merthiolate solution, followed by the use of liquid alholene as Dr. Wegner suggested.

The subject of vaccines and foreign proteins is important. We should bear in mind these infants have a definite sensitivity to horse serum in many cases. We give them a dose of horse serum, and they get a severe reaction. I saw a child four days ago with an immense reaction from horse serum. Those things can be minimized by two minims of adrenalin given at the time the horse serum is given. I like to give the whooping cough serum first. Sauers' I give at the age of six months. I give it as early as possible, and follow it with immunization against diphtheria and smallpox.

The cause of death relating to the alimentary tract has been cut down by the preparation of food. It is well to bear in mind we have a food safe to use where using cows' milk, and that is evaporated milk, which is a wonderful substitute for breast feeding. It is sterile, easily prepared and digested.

In pediatrics as well as general practice, the main thing is the physical examination. The diagnosis is still the most important part. You can tell a pediatrician from a general practitioner by two things. In making an examination, the pediatrician examines the ears and urine. Those two things are very essential.

DR. WEGNER (closing): I should like to answer Dr. Calvert's question. I have not used the Parke-Davis preparation. Minimizing the reaction meets only one of the three objects which I voiced; therefore I should still say scarlet fever immunization is not satisfactory.

I thank Dr. Harry for discussing the paper.

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# PRIMARY CARCINOMA OF THE LUNG

(A pathological and clinical study based on eighty cases)

J. MARSHALL NEELY, M. D.,
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Lincoln, Nebr.

The subject of primary carcinoma of the lung has appeared with such increasing frequency during the past few years that one hesitates to publish another paper on this subject. However, a study based on 80 cases of primary carcinoma of the lung occurring at the University of Minnesota during the years 1910 to 1931, inclusive reveals enough interesting features to warrant this report. No attempt will be made to summarize the historical aspects of this subject as this has been thoroughly reviewed and covered by recent publications. (Fried, Weller, and others).

The majority of writers on this subject believe that there is an actual increase in the incidence of primary carcinoma of the lung. The first 13 cases of this series were the basis of a report by Barron in which he concluded that the increase in the incidence was real and not apparent. Berblinger, Staehelin, Klotz, Katz and Bruun were of the same opinion. Kikuth believed that the increase was more apparent than real and could be explained on a basis of better clinical and pathological diagnosis.

Eighty cases of primary carcinoma of the lung occurred in 16,916 autopsies done at the University of Minnesota from 1910-1931, inclusive, and as may be seen from the accompanying figures there is no absolute increase in this series.

| Year | Autopsies | Carcinoma of Lung | Percentage |
|---|---|---|---|
| 1910 | 178 | 0 | .00 |
| 1911 | 152 | 1 | .66 |
| 1912 | 185 | 1 | .53 |
| 1913 | 188 | 1 | .53 |
| 1914 | 259 | 2 | .66 |
| 1915 | 414 | 0 | .00 |
| 1916 | 422 | 0 | .00 |
| 1917 | 257 | 1 | .39 |
| 1918 | 276 | 1 | .38 |
| 1919 | 292 | 2 | .68 |
| 1920 | 459 | 4 | .84 |
| 1921 | 573 | 6 | 1.02 |
| 1922 | 749 | 4 | .60 |
| 1923 | 848 | 3 | .33 |
| 1924 | 859 | 3 | .33 |
| 1925 | 1056 | 4 | .37 |
| 1926 | 1149 | 4 | .34 |
| 1927 | 1346 | 6 | .44 |
| 1928 | 2727 | 4 | .23 |
| 1929 | 1713 | 14 | .82 |
| 1930 | 1911 | 12 | .62 |
| 1931 | 2003 | 7 | .34 |
| | 16916 | 80 | .549 |

The average incidence of primary carcinoma of the lung in this series is .549% and as is seen from the above figures there is no evidence of progressive increased incidence.

It is very likely that the increase is more apparent than real and is probably due to a combination of several factors. The clinical and pathological diagnosis as well as the general increase in autopsies are important factors. In addition, many pathological entities such as sarcoma of the mediastinum, sarcoma of the lung, "oat cell tumor" of the mediastinum, and endothelioma of the pleura are now, in most instances generally recognized as primary carcinoma of the lung.

Although many theories have been advanced regarding the etiology of primary carcinoma of the lung none have been proven to be of much significance. Berblinger, Barron, Fried and Morse advanced the theory that influenza was an etiological factor due to the fact that the increase in their respective series was most marked just after the pandemic of 1918. Haythorn and others believed that bronchial metaplasia found in cases of chronic infections should be considered as an etiological factor. Ewing believes that tuberculosis plays an important part. Non-infectious irritation was brought forward following an investigation of the frequent occurrence of carcinoma of the lung in the case of the Schneeberg miners. Smoking, exhaust gas and other factors have been described in the literature as important etiological factors.

In this series of 80 cases there was nothing in the records which stood out prominently enough to be seriously considered as an etiological factor. Only five of the 80 cases showed tuberculosis and in only one of these was there definite direct evidence that the neoplasm arose on a previously existing old tuberculous scar.

The age incidence of primary carcinoma of the lung is, in general about the same as is found in all carcinoma. The average age incidence in this series is 64.5 years. The youngest case was 25 years of age and the oldest case 88 years of age. Though most writers claim that primary carcinoma of the lung occurs about 2 to 4 times more frequently in males than in females, this series showed that males are only silghtly more frequently affected than females if the ratio of males to females for all autopsies is considered. Of the 16,926 autopsies done during this period 10,857 were males and 6,059 were females, or a ratio of 1.8 to 1. The ratio of cases of primary carcinoma of the lung is 2.8 in males to 1.8 in females.

The following symptoms were given in the records of these 80 cases and, in general, they agree with those given in the literature:

| | Cases |
|---|---|
| Cough | 53 |
| Loss of weight | 44 |
| Dyspnea | 38 |
| Chest pain | 31 |
| Hemoptysis | 24 |

There are almost as many classifications of the gross pathology of primary carcinoma of the lung as there are writers on the subject. The following classification though far from satisfactory is the one which is followed in this series of cases:

| | Cases |
|---|---|
| Mass at hilus | 29 |
| Mass or masses in parenchyma | 38 |
| Miliary nodules in parenchyma | 12 |
| Diffuse type | 1 |

Boyd and others believe that a mass located at the hilus of the lung is the most frequently encountered lesion. This type of lesion was found in 29 of the 80 cases on which this paper is based. In 6 of these 29 cases the mass at the hilus was accompanied by either miliary nodules in the parenchyma or by large masses in the parenchyma. These 6 cases are included in the classification "mass at hilus," because it seems reasonable to assume that the masses and miliary nodules found in the parenchyma have metastasized from the primary tumor arising at the hilus. In most cases where the tumor mass was found at the hilus it was surrounding and stenosing the bronchus, which showed roughening and ulceration of the mucous membrane. In a few instances, however, the tumor extended into the lumen of the bronchus as a fungoid cauliflower growth. This latter type is far less common than the former.

The type of lesion characterized by one or more tumor masses located in the parenchyma of the lung occurs with greatest frequency. This type occurred 38 times, or in almost 50% of cases. The exact origin of this type of lesion is extremely difficult to determine if there are multiple masses in the parenchyma. This is due to the fact that the neoplasm originates in a secondary bronchus or in a bronchiole which is difficult to locate in most instances. The miliary type of primary carcinoma of the lung occurred in 12 of the 80 cases. Here the nodules are scattered rather diffusely throughout the lung tissue and vary little in size and shape. This type and the preceding type should be classed as primary carcinoma only after a thorough autopsy to rule out a distant primary focus.

There was one case of the diffuse type. The diagnosis was uncertain on gross examination, but microscopically it was a well differentiated adenocarcinoma. Similar cases have been described by Adler, Briese, Musser and Boyd.

In his review Boyd states that those carcinomas of the lung, in which a mass is found at the hilus, are most apt to involve the mediastinal lymph glands. In this series involvement of the mediastinal glands occurred in 39 of the 80 cases. In 16 of these a mass was located at the hilus. In 17 cases the tumor tissue was located either as a single mass or as multiple masses in the parenchyma of the lung, and in the remaining 6 cases in which there was mediastinal involvement the distribution of tumor in the lung was miliary in character. Thus, it is seen that mediastinal involvement is apt to occur, regardless of the location of the primary tumor.

Distant metastasis occurring in these cases agrees in general with those published by other writers. No distant metastases were found in 27 of the 80 cases making up this series. Metastasis, not including the pleura or mediastinum, occurred in 53 cases. The following distribution was noted:

| | Cases | | Cases |
|---|---|---|---|
| Mediastinum | 39 | Skeletal muscle | 2 |
| Liver | 29 | Duodenum | 1 |
| Pleura | 25 | Jejunum | 1 |
| Kidney | 16 | Diaphragm | 2 |
| Adrenal | 14 | Iliac crest | 2 |
| Abdominal lymph nodes | 13 | Tibia | 1 |
| Ribs | 8 | Thymus | 1 |
| Pericardium | 7 | Axillary lymph node | 1 |
| Skin | 2 | Inguinal nodes | 1 |
| Dura mater | 1 | Pancreas | 6 |
| Thyroid | 3 | Brain | 3 |
| Cervical lymph nodes | 3 | Heart | 4 |
| Supro Clav. lymph node | 1 | Scapula | 1 |
| Spleen | 4 | Humerus | 1 |
| Peritoneum | 3 | Femur | 1 |
| Vertebra | 4 | Esophagus | 1 |
| | | Stomach | 1 |

Most reports show carcinoma of the lung occurring with greater frequency on the right side. In this series the following distribution is given:

| | Cases |
|---|---|
| Both lungs | 13 |
| Right lung only | 31 |
| Left lung only | 16 |

| | Cases | | Cases |
|---|---|---|---|
| Lower right lobe | 9 | All three lobes (right) | 11 |
| Middle right lobe | 2 | Left lower lobe | 11 |
| Upper right lobe | 7 | Left upper lobe | 9 |

| | Cases |
|---|---|
| Both lobes (left) | 13 |

Distant metastasis occurred with about equal frequency in all of these gross types of carcinoma of the lung. In that type of carcinoma of the lung in which most of the tumor tissue is found in the parenchyma, metastasis occurred 32 times. In the miliary type of carcinoma metastasis occurred 6 times. In the one case of diffuse carcinoma encountered in this series there was no distant metastasis.

Until recently primary carcinoma of the lung was classified histologically according to the type of epithelium from which it supposedly arose. Carcinoma was said to arise from the bronchial epithelium, from the epithelium of the pulmonary alveoli and from the bronchial mucous glands. (Ewing, Barron and others). Microscopically this diagnosis was made on the type of cells, resembling most closely the cell type of the epithelium from which it arose and on the arrangement of the cells.

Many histologic classifications of carcinoma of the lung have been suggested. Most of these suggested in recent years are based wholly on cell structure and arrangement and do not attempt to suggest its origin. This is primarily due to the fact that there have been no carcinomas of the lung which have been proven to arise from other structures than the bronchial epithelium.

The type of carcinoma of the lung which is supposed to arise from the alveolar epithelium has been that type about which there has been the most discussion. Though Passler, in 1876, was the first to doubt the existence of carcinoma arising from the alveolar epithelium it is only during the past decade that Freid, Rose, and others have practically proven that no such tumor exists. Freid, working with normal lung, using intratracheal dyes and particulate matter, has brought forth good evidence to show that there is, in all probability no such thing as an alveolar epithelium but that the alveolus is lined by histiocytes of mesenchymal origin. Rose corroborated this with embryological studies. All types of carcinoma have been described as having arisen from the alveolar epithelium. Squamous cell carcinoma (Domeny), adenocarcinoma (Musser), and small cell carcinoma (Schuster) have all been said to be typical of that type of carcinoma arising from the pulmonary alveolus, though the type most frequently described is adenocarcinoma with the walls of the alveoli lined by tall columnar cells. One case of this type occurred in this series but due to the fact that the case was carefully followed roentgenologically it was known that the tumor arose in the right base, and in all probability from a small bronchiole. Numerous sections showed no definite primary focus. Many other cases in which the primary tumor was easily demonstrated showed a similar picture and this case also must be classed as a bronchogenic carcinoma.

Weller, Freid, Domeny, and others doubt the existence of primary carcinoma of the lung arising in the submucous glands. It is well known that many carcinomas known to have arisen from the bronchial epithelium show abundant mucin formation and this is the histologic feature which usually is used to prove the origin in the submucous glands.

Metaplasia is often mentioned as a precursor of primary carcinoma of the lung and it is partially due to the finding of this change in the bronchial epithelium in cases of influenza and bronchiectasis which led some observers to consider them as possible etiological factors. Metaplasia, as first described by Virchow, in 1884, was pictured as a direct transformation of one well characterized tissue into another equally well characterized tissue which is functionally and morphologically different. Borst, Teutschlaender, Freid, and others emphatically deny the transformation of a fully developed, well differentiated columnar cell of entodermal origin, into a well developed squamous epithelial cell of ectodermal origin but believe that metaplasia is a regenerative transformation where undifferentiated or poorly differentiated cells become active. In the case of the lung this process is described as a proliferation of the basal cells of the bronchial mucosa which displace the columnar ciliated epithelial cells causing them to desquamate and finally causing them to be so arranged that they resemble squamous epithelium. These authors suggest the term protoplasia rather than metaplasia. It has been suggested that the basal cells when active or having undergone malignant change may develop into columnar epithelium or squamous epithelium since this cell, in the embryological development becomes squamous epithelium in the case of the esophagus and columnar epithelium in the case of the bronchus. That this change is not a precursor of squamous cell carcinoma specifically is evidenced by the fact that in this series of cases metaplasia or "protoplasia" was encountered in several cases where only adenocarcinoma existed.

Many classifications of histopathology of the lung have been suggested. Passler, Adler, Weller, and all of the later writers agree that it is impossible to trace the histogenesis from the microscopic picture. Weller, in 1929, in order to show the gradual transition from one type to another, arranged 14 cases in the form of a "Y", one arm of which represents the columnar celled mucin producing papillomatous type, the other arm the cornifying squamous celled epithelium. These two well differentiated types of tumor, in this arrangement, become more undifferentiated until they meet at the upper part of the stem where the anaplastic or small cell carcinoma is represented. Weller also points out that the histologic classification is of no significance except as regards the degree of differentiation.

The following classification is used in dividing this series of cases. Microscopic sections were available in 74 cases.

| | Cases |
|---|---|
| Adenocarcinoma | 20 |
| Undifferentiated carcinoma | 18 |
| Squamous cell carcinoma | 3 |
| Small cell carcinoma | 23 |
| More than one type (mixed) | 10 |

The so-called small celled carcinomas of the lung make up what is probably the most interesting group of tumors. As pointed out by Ewing, Weller, Karsner and others most, if not all of the sarcomas of the lung reported are probably of this type.

Of the 23 small cell carcinomas of the lung 4 were recorded as sarcomas and 5 as mediastinal sarcomas. The histologic structure of these cases corresponds to the description given by Boyd, Karsner, Maxwell, Weller and others. The cells show pleomorphism, and absence of reticulum among the tumor cells which are either spindle shaped or round. The spindle cells usually have vesicular nuclei and the small round cells hyperchromatic nuclei. The cells tend to be grouped in nests separated by well vascularized septae. All of the sections on the cases recorded as sarcoma were stained with Mallory's Azo-carmine stain and Bielschowsky-Foot silver stain. These sections in each instance showed broad bands of collagen fibers but no reticulum among the tumor cells. Barnard, in 1926, was the first to point out the true nature of the oat celled sarcoma of the mediastinum and concluded that "the so-called sarcoma of the mediastinum is a medullary carcinoma of the lung bronchus." One case in this series (A-32-378) showed massive mediastinal involvement from a primary focus in the lung which was only 1 cm. in diameter. Microscopic study of the original tumor showed it to be the small cell variety and several sections of the mediastinal mass showed both small cell and squamous cell carcinoma. In all probability sarcomas of the mediastinum other than lymphosarcomas do not occur but in reality represent small cell carcinomas of the lung.

In this series of cases mediastinal involvement occurred most frequently in carcinomas of the small cell variety. Of 39 cases which showed mediastinal involvement 19 were small cell carcinomas.

Boyd and Bell point out that there is no unanimity of opinion as to the tumors which should be classed as endothelioma. Primary tumors of the pleura have been described as endothelioma, carcinoma, and mesothelioma. The tumor is supposed to arise from the lymphatics of the pleura or the serosal cells of the pleura which are known to be mesothelial in nature. Robertson, in 1924, reviewed all of the literature on endothelioma of the pleura and reported the first three cases which had occurred at the University of Minnesota up to 1924. He concluded that the only primary tumor of the pleura which is definitely known to exist is a sarcoma and that endothelioma or carcinoma of the pleura are actually metastatic growths usually arising from a primary carcinoma of the lung.

According to Ewing endothelioma of the pleura is characterized by cells grouped in alveolar or tubular arrangement. These cells are polyhedral or flat in character with hyperchromatic vesicular nuclei and faint staining nucleoli. They are usually seen in masses or cords, separated by cellular or hyaline connective tissue. Ewing further states that endothelioma may be differentiated from epithelioma by study of the individual cell structure. The cell in endothelioma is described by him as being characterized by clear cytoplasm, small pale vesicular nuclei, sharp cell outline and minute multiple nucleoli.

Seven endotheliomas of the pleura have occurred during the years 1910-1932, inclusive, in the department of pathology at the University of Minnesota. Robertson has reported the first 3 of these seven cases. (A-13-108), (A-15-362), (A-19-102) and has definitely proven that they are primary carcinoma of the lung. Of the remaining four cases occurring after Robertson's series, microscopic sections were available in only three cases.

In 2 of the 7 cases the pleura was characterized by varying sized nodules and in the remaining five cases the pleura was diffusely thickened and of a yellowish grey color. So far as could be determined by the records the parietal and visceral pleura were adherent in only 1 of the 7 cases. In all but one of the cases a tumor mass was found at the hilus and three cases showed tumor tissue following along the bronchus or a mass in the lung parenchyma. In the remaining case there was no description of tumor tissue in the lung parenchyma.

In 2 of the remaining three cases occurring after the completion of Robertson's report many sections of different parts of the tumor tissue shows areas in which there is definite gland formation made up of cells with densely stained hyperchromatic nuclei, and granular cytoplasm. Insomuch as there was tumor tissue seen grossly in the lung tissue of both these cases, and since microscopic study of them revealed a picture which is indistinguishable from adenocarcinoma of the lung it seems highly probable that the diagnosis of endothelioma of the pleura is questionable. Sections of the lungs in the remaining case shows many areas of carcinoma in the lung substance and this too undoubtedly represents a primary carcinoma of the lung with metastasis to the pleura. As stated by Robertson, massive involvement of the pleura may occur secondary to a small primary carcinoma of the lung which might be easily over-looked at autopsy. In the case where no tumor tissue was found in the lung at the time of autopsy no sections or material was available so no conclusion can be drawn from this case.

From a study of these 7 cases it seems that while the evidence is not at hand to say that there is no such thing as primary endothelioma of the pleura, one must at least conclude that a large percentage of those cases reported as such are probably primary carcinomas of the lung.

## SUMMARY

Clinical, pathological and statistical data have been presented based on a study of 80 primary carcinomas of the lung, occurring in 16,916 autopsies, at the University of Minnesota, between the years 1910-1931, inclusive. An attempt has been made to correlate the pathology found with the clinical data and to ascertain whether or not any conclusions can be made concerning prognosis.

The histopathology of these tumors has been studied in order to determine if possible, any facts concerning histogenesis and to compare the various types of histology of these tumors, with the histology seen in mediastinal tumors and primary pleural tumors.

All cases of primary malignant tumors of the pleura and mediastinum occurring during this same period were also collected and studied. Some of each of these groups have been definitely proven to be primary carcinoma of the lung. The present status of the normal histology of pulmonary alveolus has been reviewed as it is related to malignancies of the lung.

## CONCLUSIONS

1. The increased incidence of primary carcinoma of the lung is more apparent than real.

2. The only proven source of origin of primary carcinoma of the lung is the bronchial mucus membrane.

3. Primary carcinoma of the lung affects males only slightly more than females and the age incidence corresponds with that of carcinoma in general.

4. No more is known concerning the etiology of primary carcinoma of the lung than is known about carcinoma in general.

5. Carcinoma of the lungs is found in both lungs with about equal frequency.

6. Distant metastasis occurred in 27 of the 80 cases making up this series and bore no relation to either gross or microscopic type of tumor.

7. The basal cells of the bronchial mucosa are probably the cells from which all carcinoma of the lung arise. Metaplasia of the bronchial mucous membrane is found in all types of carcinoma and is not necessarily a fore-runner of squamous cell carcinoma.

8. Primary sarcoma of the lung probably does not exist, or, if it does exist it must be classed as a pathological entity of extreme rarity.

9. Small cell, or anaplastic carcinoma of the lung shows the most marked tendency to involvement of the mediastinum.

10. Primary mediastinal tumors other than lymphosarcoma, malignant thymoma, and the lymphoblastoma group, are secondary small cell carcinomas originating in the lung or some other distant focus. The round cell sarcoma or the so-called "oat-celled tumor" are included in this group.

11. Massive mediastinal involvement, and other secondary lesions may arise from an extremely small and obscure primary focus in the lung.

12. Metastatic lesions in cases of primary carcinoma of the lung may be the cause for the presenting symptom without pulmonary symptoms in many cases.

13. Most, if not all endotheliomas of the pleura are in reality, primary carcinomas of the lung with pleural involvement.

(Bibliography in Reprints.)

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# ABERRANT PANCREATIC TISSUE OF THE STOMACH WITH SURGICAL REMOVAL

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In the *Annals of Surgery* for June, 1934, in conjunction with W. F. Bowers, I reported two cases of aberrant pancreatic tissue of the duodenum with successful removal by anterior hemipylorectomy. The difficulties of diagnosis were discussed in some detail, as were the historical and embryonic theories of origin, location, anatomy and histology and the surgical complications and potentialities. Since this condition is not prevalent, I felt it was rather unusual that I should have the opportunity to add two cases to the sixty previously reported, and also harboured the feeling that I would not encounter the difficulty in the future. Within the year, however, I am able to report a case of aberrant pancreatic tissue of the greater curvature of the stomach.

In discussing the former cases, particular emphasis was laid upon the fact that the symptoms usually simulate those of peptic ulcer, cholecystitis or malignancy, although the history and findings are rarely typical of any of these conditions. This diagnostic quandary is further illustrated by the sequence of events in the following report and if I were again presented with this clinical picture, I doubt whether a preoperative diagnosis of aberrant pancreas would be made. Obstacles such as these, however, cannot fail to stimulate the surgeon or diagnostician to be aware of such an anomaly and to be alert for its presence in making a surgical attack upon the abdomen.

### CASE REPORT

J. W., janitor, aged 41, entered the University hospital for the second time, September 23, 1934. He had been discharged from the hospital in 1932 with the diagnosis of gallbladder disease and paroxysmal tachycardia of auricular origin, and was advised to stay on a fat-free, bland diet. After following this diet for two months, he felt much better except for occasional belching and mild bloating. In July, 1934, his indigestion became more pronounced, with a slight burning pain in the right hypochondrium and a sense of nausea after meals. After four or five weeks the pain became cramp-like and radiated to the back. On several occasions he vomited, but he was never jaundiced and never passed clay or tarry stools. A bread and milk diet advised by his local doctor (Dr. I. L. Thompson of West Point, Nebraska) seemed to give him relief at times. He was sent into the hospital with the diagnosis of subacute gallbladder disease.

Clinical data: Thorough examination and study by Dr. Pratt and Dr. Moody of the medical department were essentially negative. Deep pressure over the right upper quadrant did elicit slight tenderness but there was no rigidity of the muscles. A few mouth lesions were considered typical of Fordyce disease. Their conclusion was gallbladder disease.

Laboratory findings: Blood pressure 106/60. Blood sugar 82 mg. per cent. Urine, negative. N. P. N. 31 mg. per cent. Blood count: Hgb. 113 per cent; RBC 6,400,000; WBC 7,600. Icteric Index: 7.5. Van den Bergh: Direct, negative, too weak to match.

Radiographic examination: Gallbladder—Faint concentration of dye at the first examination and fair concentration of dye at the second examination. No satisfactory shadow was evident after the fat meal. Stomach—Ingestion of barium showed a fairly normal stomach; the duodenal cap showed variable filling, was smooth in contour when filled, with no definite crater at any time; stomach empty after six hours.

The patient was seen in surgical consultation on October 1, 1934, after he had been completely worked up by the medical department. My note stated that this appeared to be chronic gallbladder disease and cholecystectomy was advised.

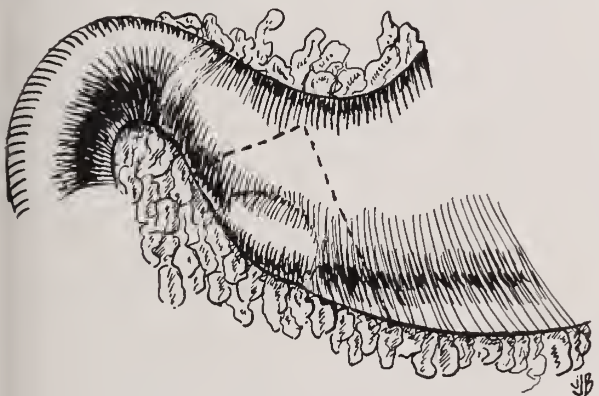

Fig. 1. Location of the aberrant pancreatic tissue and lines of excision.

Operative procedure: An upper right rectus incision was made and the stomach immediately explored. On the greater curvature, about 1½ inches from the pylorus, was a hard, slightly irregular mass about ¾-inch in diameter. I remarked in passing that this could be aberrant pancreas although grossly it did not resemble pancreatic tissue. The gallbladder appeared a little grayer than is considered normal, with possible slight thickening of its wall. No stones were palpable. With the clinical history significant of gallbladder disease, it was decided to first do a cholecystectomy, which was accomplished without difficulty. The tumor on the greater curvature was then removed by a V-shaped excision. As most tumors on the greater curvature are malignant, care was taken to excise widely along the greater curvature so the adjacent glands could be examined. If these had been found to be malignant, partial gastrectomy could have been done. After resection of the mass, I felt quite confident that it was not gastric malignancy, and by the time the abdomen was closed, Dr. Tollman of the pathology department reported that it grossly resembled pancreatic tissue. The patient made an uneventful convalescence.

Pathological report: Gallbladder measured 7x2.5 cm. It was thin-walled and showed no gross abnormality. Segment of gastric wall measured 4x3 cm. The mucosa showed no gross change. In the wall there was a nodule of tissue 1 cm. in diameter which was definitely delimited and on section it had the gross appearance of pancreatic tissue. A duct appeared to lead to the pancreatic tissue from the mucosal surface. Impression: Negative gallbladder and accessory pancreas. Microscopic: There were 3 sections of stomach wall containing a mass of pancreatic tissue including islands of Langerhans, all of which were entirely normal in appearance. One section of gallbladder was thin-walled and normal in appearance. Diagnosis: Negative gallbladder and pancreatic tissue in stomach wall.

A follow-up letter five months after operation revealed that the patient had been relieved of his symptoms. In this particular instance the diagnosis of gallbladder disease had been made mostly from the history, as the laboratory findings were not significant. Even the radiographic report showed fair concentration of the dye and good emptying after the fat meal. The gallbladder was removed because of the considered definiteness of the history and the uncertainty of its appearance, and yet the pathological report was a negative gallbladder. I believe its removal is vindicated by the lack of sufficient data on the clinical picture and pathological significance of aberrant pancreatic tissue, and only repeated publishing of this rather unusual condition will enable us to evaluate its presence and select an operative procedure. I am inclined to believe that in this particular case, partial V resection of the stomach without cholecystectomy would probably have relieved the symptoms.

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# CASE STUDIES IN GOITRE—NO. VIII

## FIXED FIBRILLATION ACCOMPANYING HYPERTHYROIDISM

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There is a definite type of hyperthyroidism in which the cardiac manifestations are the most prominent signs of the disease. Unfortunately the better known signs of toxicity of the thyroid; tremor, exophthalmos and enlargement of the thyroid are not all marked and may easily be missed. Also the signs of organic heart disease are absent and there is only tachycardia present at first and later cardiac irregularity supervening upon which to base a diagnosis of heart disease. These signs of cardiac abnormality, however, dominating the picture, cause such cases often to be classed as cardiac and treated as such until finally the damage to the cardiac mechanism is so great that the irregularity of the heart becomes fixed and even though the symptoms of thyroid abnormality can be relieved by thyroidectomy the cardiac damage is permanent and the patient's activity must be held within that allowed by a distinctly limited cardiac reserve.

It may fairly be stated that any patient having signs of limited cardiac reserve without signs of organic cardiac disease should have a thorough examination of the thyroid physiology including a basal metabolic estimation, and if signs of toxicity of the thyroid are found a thyroidectomy is indicated in order to prevent permanent cardiac damage. These patients as a rule do not do well under iodine medication and such medication should be used only in preparation for operation.

## CASE REPORT

L. H., male, saleman, aged 44 years, was admitted to the surgical service of the University hospital, December 9, 1929, being referred by Dr. L. E. Penner.

Present complaints: 1. Dyspnoea, more or less continuous. 2. Orthopnea. 3. Edema of the feet and legs. 4. Palpitation. 5. Loss of weight. 6. Ravenous appetite. 7. Mass in the neck.

Onset and development: He was well about three years ago. At that time had a rather severe attack of influenza and has not been well since. About a year ago he noticed cramps in the muscles of the feet and legs which gradually progressed to include the muscles of the fingers and hands. At about the same time he noticed some edema of the feet, dyspnoea on exertion and a general feeling of tiredness. Last March he went to see a doctor who told him he had a goitre and needed an operation. (It will be noted that up to this time all his symptoms refer to the circulatory system and it was not until two years and three months after the onset of the disease that the goitre was recognized). The patient tried to work during the summer but was easily fatigued. He had much palpitation, dyspnoea and edema and had to quit work. In September (three months ago) he had an acute heart attack that kept him in bed for five days. Since then he has not worked and has been treated medically whenever the symptoms became marked. He was finally sent to the University hospital for treatment.

Childhood diseases: Mumps, measles, chicken pox, pertussis, and small pox. Had quite a severe middle ear infection following the measles and the ear discharges whenever he has a cold. Hearing is definitely impaired in the left ear.

Other diseases: Has had quinsy about four times and was always very ill with these attacks. Had "flu" three years ago.

Injuries and operations: Was shot in the knee at fifteen years of age. Complete recovery.

Eyes: Complains of weakness of the eyes. Does not wear glasses. No strabismus, diplopia or blurring.

Ears: Impaired hearing left ear. Discharge and pains during colds.

Nose: No epistaxis, discharge or obstruction.

Throat: Has had quinsy several times.

Cardiac: Has dyspnoea, palpitation and edema. No precordial pain.

Respiratory: Has had a little cough the past few days. No hemoptysis, sputum, asthma, night sweats or chills.

Gastro intestinal: No belching, eructations, nausea or vomiting. No abdomnial pain, no diarrhoea, no clay colored or tarry stools. Had hemorrhoids. No rupture. No jaundice. Had a severe pain above the pubis about one month ago but hasn't bothered him since.

Genito urinary: Has had frequency and burning lately which he thinks due to medication. No discharge or sores. Denies venereal infection.

Neuro-muscular: Had muscle cramps a year ago. No joint pains. No dizziness or sensory loss. Special weakness in climbing stairs.

Habits: Moderate smoker. Does not use alcohol. Weight now 126 lbs. Normal 168 lbs.

Family history: Negative.

## PHYSICAL EXAMINATION:

Inspection: A middle aged male appearing somewhat nervous, lying down in bed and showing some dyspnoea.

Head: No abnormalities in size or shape.

Eyes: Somewhat staring with exophthalmos. Sclera is visible above and below cornea. Slight lid lag and quick upshoot of upper lid on looking up. Pupils equal and react to light and accommodation. No ptosis. No strabismus present.

Ears: No deformity. Hearing impaired on the left side.

Nose: No deformity, discharge or obstruction. Turbinates and septum not inflamed.

Mouth: Teeth in poor condition—decayed.

Neck: Smooth, bilateral mass in the anterior portion of the lower half of the neck. No palpable lymphatic glands.

Thorax: Hypersthenic type of chest. Expansion equal and symmetrical.

Lungs: Percussion note resonant throughout. No increase or decrease in vocal or tactile premitus. No rales.

Heart: Apex of heart rather diffuse and difficult to localize. Strongest beat felt in the fifth interspace, 1 cm. to the right of the mid-clavicular line. Action is very irregular though apparently of fair force and volume.

Abdomen: Level, soft and tympanitic. No masses, spasm or tenderness. No dullness. No hernia. Liver and spleen not palpable.

Extremities: No deformities, no edema now but evidence of former edema present. No ulcers or varicosities.

History and physical examination by Dr. L. F. Valentine.

On admission the patient's temperature was normal. The pulse at the wrist varied from 58 to 92 per minute for the first few days but the cardiac rate was well over 100. Only a little over half of the beats were coming through to the wrist. The respirations varied from 15 to 20 per minute. The patient's weight was 126½ lbs.

An electrocardiograph taken December 11, 1929, demonstrates the presence of auricular fibrillation.

The laboratory findings were as follows:

Urine: Straw, 1.022, acid, no albumen sugar or acetone. Microscopically a few epithelial cells.

Blood: December 8, 1929. Red cells 4,830,000. Hemoglobin 90%. Leucocytes 9,100. Differential count. Polymorphonuclear 24%. Lymphocytes 76%.

December 10, 1929. Red cells, 5,200,000. Hemoglobin 97%. Leucocytes 5,200. Differential count. Polymorphonuclear 38%. Lymphocytes 58%. Eosinophiles 1%. Mononuclear 3%.

December 11, 1929. Wassermann reaction negative.

December 11, 1929. Fractional gastric meal.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Free Hcl | 0 | 2% | 4% | 6% | 6% | 18% | 2% |
| Total acid | 4 | 6 | 8 | 8 | 10 | 8 | 4 |

December 12, 1929:
Basal Metabolic Test. +24% +23% +20%.

December 26, 1929:
Basal Metabolic Test. +41% +40%.

A summary of the laboratory tests shows—Auricular fibrillation, relative diminution in polymorphonuclear leucocytes, diminished percentage of free hydrochloric acid and markedly increased basal metabolic rate. All these signs were confirmatory of hyperthyroidism, but it seemed wise to rule out organic heart disease and on December 15 the patient was seen in consultation by Dr. W. B. Moody who reported as follows:

Eyes: Moderate exophthalmos. Throat: Tonsils buried, red, pillars red, there is some adenopathy. Heart: Rate 96, very irregular, fibrillating. No murmurs demonstrated. High tension first sound. I am unable to find a presystolic murmur.

Recommodations: My diagnosis is toxic condition from hyperthyroidism as I believe heart condition is secondary. I am not able to demonstrate mitral disease.

On admission the patient was placed on a high caloric diet and on the return of the finding of diminished free hydrochloric acid was given MX dil. HCl. tid ac. He immediately began to gain in weight. December 10, 1929, 126½ lbs.; December 13. 1929, 128¼ lbs.; December 22, 1929, 129 lbs.; December 25, 131 lbs.

On December 21st he was given Lugol's Solution Gtts. V.t.i.d. which was continued for five days.

On December 24 he was seen by Dr. Geo. P. Pratt as to the advisability of operation. His report follows:

The general condition is good.
Patient is anxious for operation.
I do not consider a fibrillation as a contraindication for operation. There are apparently a goodly number of cases that in spite of careful treatment continue to suffer a severe intoxication of the cardiovascular system. These cases are benefited by an operation.

—George P. Pratt.

On December 27. 1929, a subtotal Thyroidectomy was performed under cervical paravertebral anaesthesia. The operation was concluded without untoward incident and about five-sixths of a thyroid gland which was quite vascular and friable was removed. The post operative convalescence was uneventful but the fibrillation did not disappear.

Two foci from which a possible infection might originate remained, his teeth and tonsils. On January 15 x-rays were taken of his teeth with the following results:

Films of the entire dentition demonstrate in the lower jaw caries of the crown of the first molar on the left side. The second molar on the right side has a slight area of rarifaction at its apex which we would regard with suspicion. In the upper jaw the right lateral incisor and first bicuspid also on the right side, both metallically repaired teeth, show metallic fillings of their pulp canals. The remainder of the teeth in the upper jaw are in good repair.

(Signed) Oscar Lipschultz, M. D.

Early in January Diphtheria appeared in the hospital and on January 16, 1930, a positive culture was obtained from this patient's throat. He showed no active signs of the disease but was kept under observation. During this period his weight increased constantly and he improved markedly. His heart continued to fibrillate in spite of the fact that he was given three grains of quinidine sulphate three times a day. He was discharged on February 6, 1930. His throat culture had been negative for three consecutive days. His weight was 158¼ lbs., a gain of 31¾ lbs., he felt well but his heart was still fibrillating.

The examination of the thyroid gland showed:

Gross: All the lobes of the thyroid were represented in the specimen. The left measures 8 cm. x 4 cm., the right approximately the same and the isthmus in proportion.

Microscopic: The alveoli varied considerably in size but their colloid content was fairly uniform. A number of them showed slight trabecular infolding of their walls and while most of the epithelial lining was cuboidal in character, occasional areas were found where it approached the columnar type.

Diagnosis: Probable exophthalmic goiter.

(Signed) Drs. Weinberg and Eggers.

On May 2, 1930, the patient returned to the follow-up clinic and the following report was made:

"Has been feeling good. At times notices heart palpitating. Very nervous and has tremor. Has been working for the past five weeks."

(Signed) Glenn Miller, M. D.

A verbal report from the patient's attending physician in May, 1931, is that the patient is around but cannot work very much as he tires easily and appears to have a very limited cardiac reserve. His heart is still irregular.

## SUMMARY

Hyperthyroidism neglected by the patient after the diagnosis was made. Auricular fibrillation which is permanent in spite of the removal of the primary cause—the thyroid. Two other possible foci of infection (tonsils and teeth) still remain and should be removed, but I doubt if their removal will affect the fibrillation.

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## FORCE OF HABIT

"Yes, dear, my husband is a doctor and just the nicest fellow in the world, but so absent-minded!" she explained to a schoolgirl chum. "Just imagine, during the wedding ceremony, when the time came for him to place the ring on my finger, he felt my pulse, and then asked me to put out my tongue."

# REPORT OF THE DELEGATES TO THE 1934 SESSION OF THE A. M. A.

To The Honorable House of Delegates of the Nebraska State Medical Association:

It is difficult to give a birdseye view of the work of the House of Delegates of the A. M. A. inasmuch as I personally have never seen a body that transacted so much business in so brief a time, the records of which would make a good sized volume in itself.

The House of Delegates at the Cleveland session convened in the Hotel Statler at 10 a. m., Monday, June 11, 1934. The report of the week indicates that the A. M. A. on April 1 of this year had a membership of 99,536 as compared with 98.041 one year ago. There were deceased 725 members. The Fellows of the Association numbered 61,406, a gain of 692 during the year. 3,833 names were removed from the Fellowship roster, 4,570 new names added. Nebraska showed 93 counties with only 49 component societies reported. 20 counties were reported as entirely unorganized, with the directory showing 1,772 physicians in Nebraska. The State Association shows on April 1, 1,161 members with 673 Fellows, giving us evidence that we still have organization work to do.

There were printed in 1934 an average number of weekly copies of the A. M. A. Journal of 85,711. We have not time to take up all the special journals but I can but mention the marvelous gain made in the income for Hygeia. The net loss through its publication in 1934 was $2,059 as compared with $30,127 in 1933, and subscription income increased by $30,000.

The Speaker of the House, Dr. Warnshuis, said in his opening address, "The cry today in all avenues of life is for intelligent, achieving leadership. The responsibility for leadership in medicine and our medical relations to the public and to the government rests with this House of Delegates. I commit no violence to facts in stating that if, in these days of radical changes in government administration and increasing demands of society, our professional interests are subsidized and we surrender our existent relationship to society, the fault descends in a large measure on this House for having failed to mobilize all our resources to obstruct such an untoward condition and for having failed to undertake the defeat of those who seek to invade our field for the control of our professional sessions."

Allow me to interpolate at this point that the House of Delegates is only representative and in no way can be efficient in accomplishment except by the serious effort and consideration of these same subjects by the component associations and individual members of the A. M. A.

The resolutions and business brought before the House of Delegates is referred to reference committees, hearings are given upon the business or resolutions submitted to these committees, and the committees approve or disapprove the business, this being only a recommendation. They are then placed upon the floor for discussion and decision, making it possible to do a large amount of business in a reasonable length of time and with a possibility of rendering judicial decision.

Pres. Lewis said in his address, "We must preserve the idea that medicine is a profession and not a business if we are to maintain quality. We must all concede that anyone practicing medicine should be able to make a living and I am sorry to say that not infrequently the higher the ideal and the squarer the methods the less the living." He also said, "I know of nothing that makes people more suspicious of those engaged in the practice of medicine than the expert witness. Lay people must think that medicine does not even approach an exact science when two men of equal distinction in medicine will give diametrically opposite statements to questions that are asked at a trial." May I suggest that I believe today the Bar Association is more open to suggestion along these lines than ever before and that we should, during the next two years before the next legislature meets, do everything in our power to develop the possibility of providing for a court commission to prepare an expert report in medical legal cases." Dean Lewis also said, "We should remember that it is easy to say that the people are not getting sufficient medical care, but how should it be provided? Those who practice medicine are always being told how to do it, but those who criticize them have usually had no experience in doing it and could not do it at all if called on to do so. We have the right to be proud of our achievements and we can best meet every challenge directed at us by carrying on without fear and with vision." This is a splendid challenge to us all.

President-elect Bierring said, "While we gladly listen for guidance from every available source we are confident and deeply conscious of our ability to put our own house in order. The time has arrived when this Association must recognize its duty to the future welfare of American medicine and attack this problem with all the facilities at its command." He further said, "It is sad to relate that mighty forces have been at work to sow the seeds of discontent in the ranks of organized medicine and to destroy the faith in that leadership which is based on the sacred traditions of sacrifice and devotion to the idealism of medical service." May I add here what some of you have heard me say before, inasmuch as we respect each other and support each other and judge each other judicially and not with prejudice we shall have a united organization that nothing can conquer.

Attention was especially called to the package library service which is available to any member of the A. M. A., who is engaged in a literary investigation for his own advantage or for literary purposes. Any who have never thought of it will be glad to take advantage of this.

We are advised very definitely that the Council of Pharmacy and Chemistry, that the Chemists' Laboratory, that the Council of Physical Therapy and that the Bureau of Medical Economics and the Bureau of Legal Medicine and Legislation can give any member information along these lines that may be illuminating and satisfying.

I regret to state that as only one-fourth of the sum required was subscribed for the fund for establishing a memorial room in the Pershing Memorial in Paris and it being thought inadvisable to ask for additional subscriptions all donations were returned to the individual donors.

The auditor's report showed the total property and equipment, investments, cash, and accounts receivable showed a capital amount to the association of $3,450,525.

The report of the Judicial Council stated, "During the past year some of the basic beliefs and principals of the medical profession have been attacked and invaded more seriously and extensively than at any time before. An organized and financed campaign for a socialized system for furnishing medical care for a large proportion of the population has apparently crystallized its plans and begun its propaganda with the millions from certain foundations backing the effort. Practice of medicine by government in all the history of medicine in this country never has invaded the field of the private practitioner with his individual families as has the U. S. government through the emergency relief administration. This is a complete and undisguised example of state medicine."

The report also said, "Perhaps the time has come when the profession should distinguish between the temporary and the chronic indigent and demand that the community relieve the private practitioner from furnishing free care for the chronically indigent. But the temporarily indigent, those who when able paid for medical care, according to their ability to pay, should still be the charge of the medical profession in their period of distress."

The Committee on Legislative Activities tells us from their contacts they believe, "That influences are being developed which will successfully oppose any plan that requires the government to continue building hospitals and broadening hospital gratuities to an ever increasing number of veterans without service disabilities." There is so much in the report that I wish I might have the time for but permit me to particularly call your attention to the fact that this attitude of resistance to government in medicine and government in business can but promote and increase only by the united effort of every man who is honored by membership in the A. M. A. and its component societies.

The report of the Committee on Legislative Activities further says, "No legislative committee can be stronger than the will of the profession and the professional will to stand together and fight the battle for the future of medicine. This sentiment must be inculcated in the minds of every doctor in this land."

The Reference Committee of Medical Education reported that the general hospitals showed an average of 155,000 unoccupied beds and that the special hospitals had an average of 61,754 unoccuplied beds in 1933. This was brought to the front to show very plainly how many unnecessary government beds have been provided when empty beds already existed and when it is a prima facie fact that veterans could have been cared for just as efficiently and more economically under the care of hospitals of communities and private administration as by the development of this great Veterans Bureau Hospital System.

But notwithstanding the reports and the consideration thereof, the propositions and the attempt at disposition of the same brought before the regular sessions of the House of Delegates of the A. M. A. at Cleveland, the Board of Trustees felt it wise to call a special session of the House of Delegates on Feb. 15 and 16 in Chicago. Out of 168 possible delegates 162 were present at this meeting; the Reference Committee appointed by the Speaker reported among other considerations, "Your Reference Committee, believing that regimentation of the medical profession and lay control in medical practice will be fatal to medical progress and inevitably lower the quality of medical service now available to the American people, condemns unreservedly all propoganda, legislation, or political manipulation leading to these ends." It was further stated, "The House of Delegates of the A. M. A. reaffirms its opposition to all forms of compulsory sickness insurance, whether administered by the federal government, the governments of the individual states, or by any individual industry, community or similar body. It reaffirms also its encouragement to local medical organizations, to established plans, for the provision for adequate medical service for all the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness."

"The House of Delegates also recognizes the necessity under conditions of emergency, for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical service are administered and controlled by a lay bureau. It also condemns as pernicious that section of the Wagner Bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training."

The House of Delegates believes, "The so-called Epstein Bill proposed by the American Association for Social Security now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure."

Dr. West, the Secretary, says, "A large number of component county medical societies in various parts of the U. S. have taken official action in endorsing the report adopted by the House of Delegates at its called session. Speaking through their councils or through called meetings of their houses of delegates, several constituent state medical associations have taken similar action."

Permit me to suggest that this House of Delegates in annual session approve by vote the report of the Reference Committee from which I have given you quotations and which was printed in full in the Nebraska State Medical Journal of March 1, 1935.

And now there is so much more that I would like to present to you but time forbids, but I wish to thank the association for the honor of representing them for some years in this House of Delegates, of the American Medical Association, to speak of the efficiency of my fellow delegate, Dr. R. W. Fouts, to call attention to the fact that this is the most critical period in medical history. I wish to suggest that the medical profession from time immemorial has come to have the care of the health and happiness of the people of our country more than any other organization, that it has found its place in the affections of the people who have realized the kindly, scientific, persistent, never-ending efforts of the profession in the interest of the people.

Not to be sentimental, nevertheless to speak truly, we believe that we labor under the banner of a divine power just as markedly as does the clergy, that we minister at the bedside of the newborn and at the bedside of him who passes to his reward, that we recognize this to such an extent that we realize it is our duty now and evermore to so be bound together that no effort which is either thoughtless or selfish in its initiative be permitted to disintegrate us or take from us our self-control and the pleasure of our allotted duty to the public.

Respectfully submitted,

BENJAMIN F. BAILEY, Delegate
from the Nebraska State Medical
Association to the A. M. A.

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## HOW OLD ARE YOU?

Age is a quality of mind:
If you have left your dream behind,
If hope is cold,
If you no longer look ahead,
If your ambition fires are dead—
Then you are old.
But if from life you take the best,
And if in life you keep the jest,
If love you hold;
No matter how the years go by,
No matter how the birthdays fly,
You are not old.

—Author Unknown.

# REPORT OF THE NEBRASKA DELEGATE TO THE CONGRESS OF THE COUNCIL OF THE AMERICAN MEDICAL ASSOCIATION ON MEDICAL EDUCATION AND HOSPITALS

The Congress met in Chicago in February, with Dr. Ray Lyman Wilbur again serving as president. His opening address was, as usual, a brief review, particularly of what the Council had accomplished in the past year.

A re-survey of all medical schools in the United States is being made. Up to that date, February, only about one-third had been investigated and not even a preliminary report was forthcoming. Last year he told us that there was believed to be a greater difference between the grade-A schools today than there was between the best and the poorest medical schools when the first survey was begun in about 1906. I predict that a complete report next year will show many medical schools actively engaged in strengthening their positions.

Dr. Wibur stressed the facts that: Certain schools have far too many students.

That better teaching of preventive medicine and public health to general practitioners and students is needed.

That many schools need more support for public health teaching, if real advantage of known facts is to be given to the public by the general practitioner.

That psychiatry in everyday practice is still inadequate. What he stressed was the importance of a better understanding by the practitioner of the ordinary mental troubles of the ordinary patient, and how to cope with the treatment under ordinary circumstances.

That rightly trained specialists are still inadequately segregated, classified, or licensed. The recognition of specialists by certain national societies, hospital groups and colleges, has helped; but licensure by legal boards, re-registration or even re-examination at intervals are measures under discussion.

Dr. Wilbur pointed out how rapidly all education is changing today. This is particularly true of medical education, and the social tendencies of the times are influencing this and the practice of medicine not a little. These and other matters are the ones of major importance which have come to the attention of the Council during the past year.

## SHOULD THE NUMBER OF PROFESSIONAL STUDENTS BE RESTRICTED?

This subject was opened by Dr. Raymond Walters, Ph. D., president of the University of Cincinnati. He made some interesting comparisons with other professions, in the United States and in several foreign countries. Law, teaching, engineering, and others were contrasted.

In general, professions are more crowded in the United States than elswhere. The crowding has increased more rapidly in engineering, law and teaching than it has in medicine. Today there is a teacher for every 14½ students; an engineer for every 425 people. In the engineering profession there has been an increase of 60 per cent since 1920. In medicine there is approximately one doctor for every 814 people (for 1934). Methods of rapid transportation and institutional care for many more patients make this larger number of doctors unnecessary. The National Medical Commission estimates that there are 25% too many men at medical work today in the U. S. A. He quoted numerous opinions of different medical college deans, and these were at some variance. But in the main he thought the number of doctors should not be increased. One-third of the doctors in the United States are now getting $3,000.00 per year or less; one-third, $3,800.00 per year or less; and the other third above this figure. Prospective medical students should know this and that the cost of medical education is great in dollars and time. They should know also that 23 per cent of all medical college matriculants fall out before finishing their medical education. About 15 per cent fail the first year. This is an enormous economic loss and points to the need of a better sifting committee at the registration desk, and it is already excellent.

The A. M. A. finds that 100,000 applications were made to medical colleges for matriculation in the years 1932, '33 and '34. The Association of American Medical Colleges puts a very strict evaluation on all these applicants, and very, very many are declined. Many of the disappointed apply in foreign countries, especially English-speaking countries, which means largely Great Britain. Their general medical council cooperates very well with the Association of American Medical Colleges, but unfortunately they have unapproved medical colleges in Britain and these seem to welcome our rejected applicants. Seventy-nine of these rejected applicants are now in the Anderson College of Medicine in Glasgow. Of these, forty-two had made 651 applications to American colleges, or an average of nearly fifteen rejections each. Most of there Americans will return to U. S. A. and troublesomely persist in being licensed.

In U. S. A. all states but eight require two years' college work for registration in colleges of medicine. Three of these eight require one year, and five, including Nebraska, require only high school or its equivalent. It is noteworthy that our colleges, in Nebraska, require more than the state law. The curriculum of the freshman year in medical colleges of this country is probably the most difficult of any branch of study.

A little summary of the interesting facts in medical education might be listed as follows:

There have been 33,000 applications for registration each year for the last three years.

7,112 graduated from all colleges in 1932.

7,730 graduated from all colleges in 1934.

23% of all matriculants fail to graduate.

5,435 were newly licensed to practice in 1934.

3,400 were lost by death.

Eleven states now have basic science laws.

Just at this point one should note, in the consideration of restricting the number of medical students, the fact that crowding in the practice of medicine is vastly different from crowding of commercial lines. The law of supply and demand as applied in commerce or industry does not work by the same rule in the practice of medicine. Over-supply in commercial lines quickly responds to an equalizing factor. In the case of too many medical men, a surplus quickly leads to inferior service and degenerative tendencies, which not only reflect badly upon the profession but, worse, still, they tear down medical efficiency for the community. Therefore, quality, not quantity, is of paramount importance.

But while these evidences of crowding exist, it was pointed out that there never was over-crowding in the profession so far as high quality of doctor is concerned. That the field of medicine has many avenues unexplored. That there remains a vast field of research so far as old problems are concerned. That we are relinquishing to technicians certain fields of work which really should be done by doctors, and so we ourselves encouraging our overcrowding (anesthetists).

At the end of the discussion the concensus of opinion seemed to be that the restriction of registration of students should go on. That the sifting committee should select better students, if possible, so that the 23 per cent of failures to graduate should be curtailed. That better equipment for teaching and for more research and post graduate work be provided as possible. Thus the three chief characteristics of quality in doctors, namely expert ability, high character, and personality, would come to prevail; and thus also the greatest good in the practice of medicine would be brought to the greatest number of people in the United States.

## THE LARGER SOCIAL ASPECTS OF MEDICAL EDUCATION

By Dr. Richard Scammon, Dean of Medical Sciences, University of Minnesota.

Dr. Scammon referred to the medical insurance problems now before the public in this country, but added little to that with which you are familiar.

He made the point that society in general will be helped more by giving better opportunities to those doctors already in practice, as well as to the medical students, than if we increase the number of medical students, resort to health insurance in some form, or go rapidly into worse forms of State Medicine. Some of the ways mentioned as possible to help the doctor already in practice, are as follows:

Provide some adequate means of re-schooling or re-educating the practitioner.

Adequately finance hospitals and distribute the cost problems so that the medical knowledge which we already possess could be transferred to the patient without the tax falling on the doctor and the direct earning power of the hospital. This in itself would greatly solve the present inadequacy of medical care which we have heard so much about in the last decade.

## SHOULD THE RADIOLOGIST, THE PATHOLOGIST AND THE ANESTHETIST BE LICENSED TO PRACTICE MEDICINE?

This most interesting subject was presented from the legal aspect as well as that of the radiologist, the pathologist, anesthetist, surgeon, internist, hospital administrator and licensing board. The general concensus of opinion was that all radiologists, clinical pathologists and anesthetists should be graduates of medicine. This did not exclude technicians, but technicians were simply doers of certain assigned tasks, and were not in any sense rendering opinions or carrying responsibilties of these specialties.

A few of the interesting viewpoints might be presented. Legally, the roentgenologist, like any other specialist, is governed in the rendering of service according to the average standards in the community in which he practices. However, there is nothing in the law to prevent the patient from giving his consent, knowingly and willingly, to accept the services of a non-licensed layman, or technician, as for example an x-rayman; and therefore this layman cannot be held liable while operating under that consent.

Just now there is a tendency in some of the larger hospitals to make so-called major radiologists and minor radiologists of different staff men. The major one is he who is practicing as an expert radiologist. The minor one is a staff man on some other line who is permitted as a minor radiologist to make decisions upon films taken by technicians in the hospital. This practice was frowned upon, and it is thought no standard hospital should have so-called minor radiologists recognized as staff men.

In using technicians in a clinical pathological laboratory, it is thought to be legally important to have on record occasional tryouts of knowns and unknowns for these technicians. The author thought that it would be of legal value, in case of court procedure, to prove to the jury that the technician rendering services for the clinical pathologist or M. D. was occasionally tested by him for accuracy on knowns and unknowns.

ANESTHESIA was best defined by Dr. F. J. McMechan, Secretary General, International Anesthesia Research Society, Rocky River, Ohio.

He said that all anesthetists should be licensed, of course, because they are, first, giving drugs, the most potent of all drugs, and because they so promptly render unconsciousness and are so dangerous.

(2) The intravenous, spinal, rectal, as well as respiratory giving of anesthesia, are all major affairs and no technical anesthetist should be allowed to give them.

(3) No patient should ever be given an anesthetic without the anesthetist O.K.-ing the diagnosis and helping to determine which type of anesthesia is best and which is least dangerous. No layman is in a position to judge this, either before the anesthesia or during the anesthetic.

(4) The anesthetist should be able to treat during the operation if things go wrong, as for instance in tracheal obstruction, need of oxygen therapy, hypodermic, etc.

In the general discussion, this viewpoint was conceded to be correct in theory but in practice it was less feasible. There are so many thousands of anesthetics given each year that if all were given by M. D.'s and M. D.'s only, there would often be little time to do other things. Also, many emergency anesthetics must be given when no extra M. D. is available. The counter argument to this is that if it is correct in theory to have only licensed M. D.'s give anesthetics, and if the profession is already over-crowded, then here is an outlet for the services of more doctors. In the British Empire, only licensed doctors are permitted to give an anesthetic. In certain states, Kentucky for example, anesthetists must be licensed but not M. D.'s. To be eligible for licensure, he or she must be a graduate nurse and have had satisfactory, acceptable training in giving of anesthesia. In this same state the same requirements and privileges apply to technicians in clinical pathology.

## OSTEOPATHY AND LICENSURE

By Freaderick Etherington, Dean of Queen's University Faculty of Medicine, Kingston, Ontario.

Because the province of Ontario had been asked to license osteopaths, a committee was appointed by this province to investigate the schools of osteopathy in the United States, there being none in Canada. It was the report of this committee, which we heard. These committeemen had visited many of the best osteopathic schools, and their findings were deplorable. They found that the osteopaths were not only failing to teach strictly osteopathy, but they were not practicing osteopathy only. The committee believed it was but a guise under the name of osteopathy, by means of which inferior trained men and women were attempting to be licensed in order to practice in reality, general medicine.

Perhaps the most interesting part about the discussion was that several prominent osteopaths were permitted the privilege of the floor. They assumed the under-dog attitude and asked why regular medicine should not now be as fair with the osteopathic schools as they had in times past finally been with the schools of homeopathy.

To me, the most important feature of the whole discussion was in the following suggestion, made by the Canadian doctor: He suggested that in the United States, when some state legislature was pushing an issue in favor of osteopathy, that there be gotten from that legislature an official request to investigate the schools of osteopathy, just as the Province of Ontario had done. If such an investigating committee could not be composed of M. D.'s, let it be of scientific laymen, they to be instructed to examine four-year osteopathic schools and at the same time a like number of qualified medical schools. Such a qualified committee could probably correctly interpret to the legislature the status of existing osteopathic education.

### EXTENSION TEACHING IN MEDICINE

One might consider this subject presented for the East by Dr. Charles G. Heyd, of New York, and for the West by Dr. D. J. Glomset, of Des Moines.

Dr. Heyd emphasized the big lag which exists today between scientific medical knowledge and its application. In extending medical teaching so that the greatest good would come to the greatest number, he pointed out, it must extend from the medical student to the individual practitioner contacting the public. Thus he classified medical education into (1) medical college work, (2) schools for graduate work and research, (3) medical clinics, in the larger centers of population, (4) hospital staff clinic meetings, and (5) postgraduate work in medical schools.

He prophesied that the small private hospital, or voluntary hospital, was doomed to go. It is about to pass out for economic reasons. It is the old story told again, that the people have learned to demand treatment in great detail, regardless of cost; but they have not yet learned that somebody must pay for it. And so the smaller hospitals cannot run to a balance, and are doomed. He prophesied that there would be more three- and four-hundred bed hospitals, with paid staffs, doing research work as well as teaching, not only of medical students but practitioners and the public. He further prophesied that there would be more moderately trained general practitioners getting into the field earlier, with more required re-education and more facilities for the giving of this re-education to said practitioners from time to time. He seemed to think that these larger hospitals with a paid staff might provide such teaching facilities for the re-education of general practitioners.

Extension work as presented by Dr. D. J. Glomset, of Des Moines, Iowa, was particularly interesting to me because it pertained to the carrying of postgraduate work out to the rural practitioner in his own field. I was most interested because I am convinced it represents a need here in the Middle West and because he is using in Iowa almost exactly the plan which we have in the past advised our own State Medical Association to adopt.

He stated that in Iowa they are now reaching 70 per cent of general practitioners in this re-education process, directed by the Speakers' Bureau Committee of the State Medical Society of Iowa. Dr. Glomset states that this work in Iowa has stood on its own merits and paid its own way, on a basis of (1) greater efficiency for the general practitioners; (2) the creation of a greater solidarity in the profession of the state; (3) because it has developed greater medical leadership; and (4) it has helped with the education of tho public and the community on health subjects. During this last year about seventeen hundred doctors have enrolled for the work, and this is about two-thirds of the doctors in Iowa.

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Doctors say alcohol is a depressant, but why does it concentrate in the foot that is on the accelerator?—*Publishers Syndicate.*

## BREAST AND ARTIFICIAL FEEDING: INFLUENCE ON MORBIDITY AND MORTALITY OF TWENTY THOUSAND INFANTS

The study of Clifford G. Grulee, Heyworth N. Sanford, Chicago, and Paul H. Herron, Spokane, Wash. (*Journal A. M. A.*, Sept. 8, 1934) carried out during the years 1924 to 1929 on 20,000 infants, indicates that in every instance, from the point of view of feeding, breast feeding gives a much greater immunity to infections than artificial feeding. It is shown that even a partial breast feeding gives considerable immunity. The breast fed infant will have a 50 per cent better immunity than one that is artificially fed. Among the gastro-intestinal disturbances there were twice as many disturbances in the partially breast fed as in the totally breast fed, and three times as many in the artificially fed as in the totally breast fed. The same proportion is true in the unclassified infections, while in the respiratory infections the discrepancy was not so marked. The general mortality was ten times greater in the artifically fed than in the breast fed. The partially breast fed had four times the mortality of the totally breast fed and only one-third that of the artificially fed. In the respiratory disturbances it is shown that, while the breast fed baby has a morbidity of 10 per cent less than the one artifically fed, the mortality is only one-twentieth as high, while even the partially breast fed infant has ten times the breast fed mortality and only half that of the artificially fed. In the gastro-intestinal disturbances the breast fed mortality was 9 per cent, while the artificially fed baby had seven times the mortality and the partially breast fed three times. In the unclassified infections the mortality of the partially breast fed was three times that of the breast fed and the artificially fed four times. Undernutrition did not enter into the author's study. The 20,000 infants represent a true cross section of the national urban life. It cannot be said that these are uncared for slum babies, because the general mortality was only 11 per thousand, or less than one fourth of the infant mortality of the same region; yet in 8.5 per cent of these 20,000 babies was 66 per cent of the total mortality. If the artificially fed babies are taken from the total, the mortality is only 4 per thousand, and if only the breast fed are considered it is only 1.6 per thousand. Obviously, therefore, if one hopes to decrease further the infant mortality of this country it must be done by encouraging breast feeding.

# ANNUAL LEGISLATIVE PROCEEDINGS, NEBRASKA STATE MEDICAL ASSOCIATION

## HOUSE OF DELEGATES

The first session of the House of Delegates was held at the Fontenelle Hotel in Omaha, May 14, 1935, at 12:30 p. m. The meeting was called to order by President Joseph Bixby.

The minutes of the 1934 meeting were called for.

A motion was made that inasmuch as the minutes of the 1934 meeting were published in the Journal that the reading of these minutes be dispensed with and that they be adopted as published. Seconded and carried.

The roll call by Secretary Adams showed fifty-four members present.

A motion was made that inasmuch as neither Dr. J. P. Feese or Dr. D. W. Kingsley were not present as delegates from Adams County that Dr. H. S. Andrews of Minden be seated as delegate for Adams County. Seconded and carried.

Nominations were now in order for President pro tem. A nomination was made that Dr. Lucien Stark be named as President pro tem.

A motion was made that Dr. Lucien Stark be unanimously elected as President pro tem. Seconded and carried.

The report of the Council was called for. Dr. Overgaard made a motion that inasmumch as the proceedings of the Council were published in the May isue of the Journal that the reading of these proceedings be dispensed with and that they be adopted as published. Seconded and carried.

The report of the Secretary-Treasurer was called for. Secretary Adams stated that this report was made to the Council in January and published in the Journal and suggested that this report be approved as published.

A motion was made that the report of the Secretary-Treasurer be approved as published in the Journal. Seconded and carried.

The report of the Program Committee was called for. Secretary Adams stated that this report was made to the Council in January.

A motion was made that this report be approved as given before the Council. Seconded and carried.

The report of the Delegate to the Council on Medical Education and Hospitals of the American Medical Association and the Council on Medical Education was called for. This was given as a joint report by Dr. J. S. Welch.

These two reports were received and referred to the Council by the chair.

The report of the Committee on Public Policy and Legislation was called for. This report was made by Dr. B. F. Bailey.

This report was received and referred to the Council by the chair.

Dr. Bixby stated that inasmuch as the time was getting short that all other business be dispensed with and that the House of Delegates now adjourn for a three minute recess in order to enable the Councilors and Delegates from each district to select their men to serve on the nominating committee.

The House of Delegates adjourned for a recess of three minutes. The meeting was again called to order by Dr. Bixby. The following Committee on Nominations was elected:

First District—Dr. J. D. McCarthy, Omaha.
Second District—Dr. J. E. M. Thomson, Lincoln.
Third District—Dr. H. R. Miner, Falls City.
Fourth District—Dr. Walter Benthack, Wayne.
Fifth District—Dr. Morris Nielsen, Blair.
Sixth District—Dr. R. E. Harry, York.
Seventh District—Dr. Rudolph Decker, Byron.
Eighth District—
Ninth District—Dr. F. A. Burnham, Arnold.
Tenth District—Dr. S. H. O'Neill, Webster.
Eleventh District—Dr. A. V. Wortman, Curtis.
Twelfth District—Dr. W. C. Harvey, Gering.

The necrology report was read by Dr. Overgaard. All members of the House of Delegates remained standing during the reading of this report.

A motion was made by Dr. Overgoord that pages be set aside in the Journal in memory of these departed members. Seconded and carried.

Dr. W. W. Arrasmith of Grand Island submitted a resolution as follows:

"Whereas the Nebraska State Medical Association now in session at Omaha recognizes completely the distinct merits of the American Legion Aviation Bill, Senate File 30.

"Be it enacted that the Nebraska Medical Association unanimously request and urge the Governor and the Legislature to pass this very important legislation for the very important safety elements and distinctly outstanding advantages of present and further aviation in Nebraska as it pertains especially to safety in our practice of medicine.

"Be it further resolved that our Association recognizes the present inert status of Senate File 30 and that these resolutions, therefore, be immediately forwarded by telegram to the Governor, the Speaker of the House of Representatives, and the President of the Senate."

A motion was made that this resolution be adopted. Seconded and carried.

A motion was made that the House of Delegates adjourn. Seconded and carried.

## COUNCILOR ANNUAL MEETING, MAY 14, 1935

The annual meeting of the Councilolrs was held at the Fontenelle Hotel in Omaha, May 14, 1935, at 7:30 p. m. The meeting was called to order by Dr. Cooper. The following members of the Council were present: Drs. Overgaard, Lehnhoff, Boyer, Brush, Davis, King, Potter, Bryson, Rork, Platt, Cooper, President Selby, and Past-President Bixby. In addition to these the following guests were also present: Dr. R. B. Adams, secretary-treasurer; Dr. F. A. Long of the Journal Committee, Dr. J. P. Lord, past-president, and Dr. E. C. Henry.

Inasmuch as the minutes of the last Councilor meeting were published in the Journal and approved by the House of Delegates at their last meeting a motion was made that the reading of these minutes be dispensed with and that they be approved as published. Seconded and carried.

Dr. J. P. Lord and Dr. E. C. Henry discussed the matter of the Crippled Children Clinics conducted in Nebraska. This was further discussed by the members of the Council.

Dr. Overgaard read the resolution presented by Dr. E. C. Sage as follows:

"WHEREAS, the medical profession and the public have the right to look to the American Medical Association to assume a role of leadership in both the scientific and legal phases of all branches of medical practice; and

"WHEREAS, the whole subject of birth control is seriously in need of scientific study and investigation; be it

"RESOLVED, that the Nebraska State Medical Association request the House of Delegates of the American Medical Association to initiate a comprehensive program with respect to the study of birth control, instructing its appropriate agencies to undertake the necessary scientific study, and be it

"FURTHER RESOLVED, that our Delegates to the House of Delegates be instructed to urge, and vote for, the adoption of such a program of investigation; and that the secretary be hereby instructed to forward a copy of these resolutions to the Secretary of the American Association."

Respectfully submitted,

DR. E. C. SAGE, State Chairman of the National Medical Committee on Federal and State Contraceptive Legislation.

A motion was made by Dr. Selby that the Council recommend this resolution to the House of Delegates with the last paragraph omitted which reads as follows:

"FURTHER RESOLVED, that our Delegates to the House of Delegates be instructed to urge, and vote for, the adoption of such a program of investigation; and that the secretary be hereby instructed to forward a copy of these resolutions to the Secretary of the American Medical Association." Seconded by Dr. Potter.

This motion was amended by Dr. Boyer, who made a motion that this resolution be tabled. Seconded and carried.

Dr. Welch's report as Delegate to the Council on Medical Education of the American Medical Association and the Council on Medical Education was discussed. A motion was made that this report be further discussed at a later meeting. Seconded and carried.

The report of the Special Committee to study the program was discussed.

A motion was made by Dr. Lehnhoff that the Council recommend to the House of Delegates that this report be adopted. Seconded by Dr. Cooper and carried.

The report of the Delegates to the American Medical Association was discussed. A motion was made by Dr. Overgaard that the Council accept this report of the Delegates to the American Medical Association in full and that it be published in the Journal. Seconded and carried.

The resolution suggested in the report of the Delegates to the American Medical Association was further discussed. A motion was made by Dr. Boyer that the Council recommend to the House of Delegates that they approve the report made by the Delegates to the American Medical Association relative to the resolution as follows: "The House of Delegates of the A. M. A. reaffirms its opposition to all forms of compulsory sickness insurance, whether administered by the federal government, the governments of the individual states, or by any individual industry, community or similar body. It reaffirms also its encouragement to local medical organizations, to establish plans, for the provision or for adequate medical service for all the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.

The House of Delegates also recognizes the necessity under conditions of emergency, for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical service are administered and controlled by a lay bureau. It also condemns as pernicious that section of the Wagner Bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training."

The House of Delegates believes, "The so-called Epstein Bill proposed by the American Association for Social Security now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure."

A motion was made by Dr. Overgaard that the Council adjourn. Seconded and carried.

## HOUSE OF DELEGATES

### SECOND SESSION

The second session of the House of Delegates was held in the Fontenelle Hotel in Omaha, May 15, 1935, at 8:00 a. m. The meeting was called to order by President Selby.

The minutes of the first session of the House of Delegates was read by Secretary Adams. These minutes were received and approved as read by the chair.

The minutes of the Council meeting were read by Dr. Overgaard, secretary of the Council. A motion was made that these minutes be adopted as read. Seconded and carried.

Roll call by Secretary Adams showed forty-four members present.

A motion was made that inasmuch as the delegate from Frontier County was not present that Dr. Roseneau of Eustis be seated in his place. Seconded and carried.

The report of the Committee on Journal and Publication was called for. Dr. Long stated that inasmuch as this report was given at the Council meeting in January and published in the Journal and that he had nothing further to add, that they be adopted as published. This report was received and adopted by the chair.

The report of the Campaign Committee was called for. Secretary Adams read the report submitted by Dr. K. S. J. Hohlen, chairman of this committee. This report was further discussed by the Council. This report was received and referred to the Council by the chair.

The Insurance Committee report was called for. This report was made by Dr. C. A. Selby who stated: "The Insurance Committee has been held in contact, because of the fact that the insurance previously written has not expired on the policies and it seems fitting to hold this committee intact in order to protect the interests of the Association. Other than this the Insurance Committee has nothing further to report."

The report of the Medico-Legal Advisory Committee was called for. This report was given by Dr. Fouts at the Council meeting in January and was also published in the Journal. In this connection the resolution submitted to the House of Delegates by Dr. W. W. Arrasmith after the adjournment of the last meeting was discussed by Dr. Fouts and members of the House of Delegates.

Dr. H. W. Francis made a motion that inasmuch as the action taken in regard to the Aviation Bill, Senate File 30 was illegal as it was acted upon after the adjournment of the regular session of the House of Delegates and that it be stricken from the minutes and that the House of Delegates instruct the Secretary of the Association to take definite action and find out as nearly as possible any communication that has been forwarded to the Governor, Speaker of the House of Representatives and President of the Senate. Seconded.

An amendment was made to this motion making the first part a separate motion, namely: "That inasmuch as the action taken in regard to the Aviation Bill, Senate File 30 was illegal as it was acted upon after the adjournment of the regular session of the House of Delegates, that it be stricken from the minutes."

After discussion of this motion and the amendment to the motion Dr. Francis withdrew his original motion.

A motion was made that a committee composed of Drs. R. W. Fouts, B. F. Bailey, and K. S. J. Hohlen be appointed to cooperate with the President and Secretary of the House of Delegates to forward such information as they see fit in regard to this Aviation Bill, Senate File 30, that will correct this situation. Seconded and carried.

A motion was made by Dr. K. S. J. Hohlen that Dr. Palmer Findley be permitted to have the floor in order to explain the resolution in regard to Contraceptive Legislation. Seconded and carried.

This resolution was discussed by Dr. Findley and the House of Delegates.

A motion was made that the Delegates of the Nebraska State Medical Association be instructed to carry the information in this resolution to the Delegates of the American Medical Association. This motion was lost.

The report of the Cancer Committee was called for. Dr. Kelley stated that he had nothing further to report in addition to the report given at the January Councilor meeting, and which report was published in the Journal.

The report of the Public Activities Committee was called for. Dr. Hays, chairman of this committee was not present.

The report of the Medical Students Loan Fund was called for. Dr. Overgaard stated that he had nothing further to add to the report given at the January Councilor meeting.

Dr. King submitted an amendment to the By-Laws:

Chapter 12, Section 1 which reads: "An assessment of $5.00 per capita on the membership of the component societies is hereby made the annual dues of this Association." to be changed to read: "An Assessment of $10.00 per capita on the membership of the component societies is hereby made the annual dues of this Association."

Dr. Rudolph Decker submitted two amendments to the By-Laws:

Chapter 6, Section 4, at the end of the section which reads: "He shall act as chairman of the Committee on Scientific Work." This sentence to be stricken out.

Chapter 11, Section 2 which reads: "At each Annual Meeting a chairman and secretary shall be appointed by the president, the chairman to serve for one year and the Secretary for two years, and both until their successors are appointed." This section to be repealed.

Dr. Shelby submitted an amendment to the amendment submitted by Dr. McCarthy relative to the Program Committee as follows: "That these amendments, as proposed by the Program Committee automatically void all other conflicting By-Laws."

Dr. Overgaard made an announcement relative to the Phi Rho Sigma meeting at the University of Nebraska Saturday evening, May 18, 1935, at 8:00 o'clock in honor of Dr. B. B. Davis at which meeting Dean Cutter will be the speaker.

A telegram to be sent to the Governor, Speaker of the House of Representatives and President of the Senate submitted by the Committee appointed to correct the entanglement on the Aviation Bill, Senate File 30 read as follows: "This is to inform you that any communication reporting to come from the House of Delegates of the Nebraska State Medical Association relative to Senate File 30, represents no official action of this body which interests itself only in matters pertaining to Public Health."

A motion was made that the meeting adjourn. Seconded and carried.

## COUNCILOR ANNUAL MEETING MAY 15, 1935

The second meeting of the Council was held at the Fontenelle Hotel in Omaha, May 15, 1935, at 9:00 a. m.

The meeting was called to order by Dr. Cooper. The following members of the Council were present: Drs. Overgaard, Lehnhoff, Boyer, Brush, Davis, King, Potter, Bryson, Rork, Platt, Cooper, President Selby, Past-president Bixby. In addition to these the following guests were also present: Dr. R. B. Adams, Secretary-Treasurer; Dr. J. P. Lord, a Past-president, and Dr. Theo. Peterson.

Dr. Overgaard made a motion that Dr. Bailey's report on Public Policy and Legislation be accepted and placed on file, and that the Council wishes to express their appreciation of the work this Committee has done. Seconded by Dr King and carried.

Dr. Bryson made a motion that the report of the Campaign Committee be accepted and that their activities be highly commended. Seconded and carried.

Dr. J. P. Lord submitted a resolution as follows:

"Resolved by the Council that we approve and endorse the objects, aims and purposes of the Nebraska Society for Crippled Children and recommend similar action by the House of Delegates of the Nebraska State Medical Association."

A motion was made that this resolution be adopted. Seconded and carried.

Dr. Welch's report as Delegate to the Council on Medical Education of the American Medical Association and the Council on Medical Education was further discussed.

Dr. Adams made a motion that the Council accept and recommend the publication of the part of Dr. Welch's report that has to do with the Delegates to the Council on Medical Education of the American Medical Association. Seconded by Dr. Davis and carried.

The matter of a full time field secretary was then discussed.

A motion was made by Dr. Davis that the part of Dr. Welch's report which pertains to Medical Education and Hospitals be accepted and placed on file without recommendation. Seconded by Dr. Boyer and carried.

The matter of additional expense for the program was then discussed.

The following budget was recommended for the year 1936:

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|---|---|
| Journal Fund, per member | $ 1.50 |
| Medico-Legal Advisory Fund, per member | 1.00 |
| Salary of the Medico-Legal Advisory Chairman | 600.00 |
| Salary of the Secretary | 600.00 |
| Councilor Expense | 360.00 |
| Office Expense of the Secretary | 600.00 |
| Reporter for the Annual Meeting | 150.00 |
| Campaign Committee | 500.00 |
| President's Expense | 100.00 |
| Public Policy and Legislation Committee | 100.00 |
| Program Talent | 600.00 |

| | |
|---|---|
| Delegates to the American Medical Association | as Submitted |
| Delegate to the Council on Medical Education of the A. M. A. | as Submitted |
| Medical Student Loan Fund Committee, if available | 500.00 |

A motion was made by Dr. Bryson that this budget be recommended to the House of Delegates as read. Seconded by Dr. Potter and carried.

Selection of the place for the January meeting of the Council was now in order.

A motion was made by Dr. Bryson that the January meeting of the Council be held in Omaha. Seconded by Dr. Potter and carried.

A motion was made by Dr. Overgaard that Dr. R. W. Fouts of Omaha be re-elected as chairman of the Medico-Legal Advisory Committee for a term of two years and that the Council at this time wish to express publicly their most sincere appreciation of the multitudinous and highly efficacious and most esteemable accomplishments in executing the objectives of this committee. Seconded by Dr. Potter and carried.

A motion was made that the Council adjourn. Seconded and carried.

### HOUSE OF DELEGATES
### THIRD SESSION

The third session of the House of Delegates was held at the Fontenelle Hotel in Omaha May 16, 1935, at 8:00 a. m. The meeting was called to order by President pro tem Dr. Lucien Stark.

Roll call by Secretary Adams showed sixty-one members present.

The minutes of the second session of the House of Delegates were read by Secretary Adams. A motion was made that these minutes be approved as read. Seconded and carried.

The minutes of the second session of the Council were read by secretary of the Council, Dr. Overgaard. A motion was made by Dr. Overgaard that this report be adopted as read. Seconded and carried.

The report of the committee on nominations was called for. This report was read by Dr. Morris Nielsen as follows:

For President-elect: Dr. George W. Covey, Lincoln.

For Vice Presidents: Dr. W. P. Wherry, Omaha; Dr. J. D. Reid, Pilger.

For Councilors: Dr. R. D. Bryson, Callaway, 9th District; Dr. L. W. Rork, Hastings, 10th District; Dr. O. R. Platt, North Platte, 11th District; Dr. A. L. Cooper, Scottsbluff, 12th District.

For Delegate to the A. M. A.: Dr. B. F. Bailey, Lincoln.

For Alternate Delegate to the A. M. A.: Dr. Lucien Stark, Norfolk.

For Delegate to the Council on Medical Education of the A. M. A.: Dr. J. Stanley Welch, Lincoln.

For Member of the Journal and Publication Committee: Dr. B. F. Bailey, Lincoln.

For Member of the Student Loan Fund Committee: Dr. H. J. Lehnhoff, Lincoln.

For Member of the Public Activities Committee: Dr. J. D. McCarthy, Omaha.

For Member of the Cancer Committee: Dr. J. M. Willis, McCook.

For Chairman of the Campaign Committee: Dr. E. S. Wegner, Lincoln.

A motion was made that the report of the nominating committee be accepted and that the committee be discharged. Seconded and carried.

The House then proceeded to the election of officers.

Additional nominations for president-elect were in order. As no additional names were submitted by the House, nominations for president-elect were closed. A motion was made that the rules be suspended and that the secretary be asked to cast the unanimous ballot of the House of Delegates for Dr. George W. Covey for president-elect. Seconded and carried.

Dr. Stark appointed Dr. A. C. Barry of Norfolk and Dr. H. J. Lehnhoff of Lincoln as a committee of two to bring Dr. Covey, president-elect before the House of Delegates.

Additional nominations for the two vice-presidents were then in order. As no additional names were submitted by the House, nominations for vice-presidents were closed. A motion was made that the rules be suspended and that the secretary be asked to cast the unanimous ballot of the House of Delegates for Dr. W. P. Wherry of Omaha and Dr. J. D. Reid of Pilger for the two vice-presidents. Seconded and carried.

Additional nominations for the Councilor of the Ninth District were then in order. Dr. B. R. McGrath made a motion that the name of Dr. W. J. Arrasmith of Grand Island be added for Councilor of the Ninth District. Seconded and carried.

A motion was made by Dr. Potter that the nominations for Councilor for the Ninth District be closed. Seconded and carried.

Drs. Walter Benthack of Wayne and J. D. McCarthy of Omaha were appointed as tellers.

The House of Delegates then proceeded to cast ballot for the two nominees for Councilor for the Ninth District.

Dr. R. D. Bryson received 41 votes and Dr. W. J. Arrasmith 22 votes.

A motion was made that inasmuch as Dr. Bryson received the majority of votes cast for Councilor for the Ninth District that his election be made unanimous. Seconded and carried.

Additional nominations for the Councilor of the Tenth District were then in order. A motion was made that the rules be suspended and that the secretary be asked to cast the unanimous ballot of the House of Delegates for Dr. L. W. Rork for Councilor of the Tenth District. Seconded and carried.

Additional nominations for the Councilor for the Eleventh District were then in order. A motion was made by Dr. E. C. Stevenson of Gothenburg that Dr. J. B. Redfield of North Platte be nominated for Councilor of the Eleventh District. Seconded and carried.

A motion was made that nominations be closed. Seconded and carried.

The House of Delegates then proceeded to cast ballot for the two nominees for Councilor for the Tenth District.

Dr. O. R. Platt received 39 votes and Dr. J. B. Redfield received 25 votes.

A motion was made that inasmuch as Dr. O. R. Platt received the majority of votes cast for Councilor for the Eleventh District that his election be made unanimous. Seconded and carried.

Additional nominations for the Councilor for the Twelfth District were then in order. A motion was made that the rules be suspended and that the secretary be asked to cast the unanimous ballot of the House of Delegates for Dr. A. L. Cooper for Councilor of the Twelfth District. Seconded and carried.

A motion was made by Dr. Overgaard that inasmuch as there was only one candidate for each remaining office that the rules be suspended and the secretary be asked to cast the unanimous ballot of the House of Delegates for the men named by the nominating committee for offices in the Nebraska State Medical Association. Seconded by Dr. Hohlen and carried.

The amendment submitted by Dr. King to the By-Laws was discussed.

A motion was made by Dr. Bailey that the House of Delegates adopt the amendment proposed by Dr. King to read as follows: "Chapter 12, Section 1: An assessment of $10.00 per capita on the membership of the component societies is hereby the annual dues of this Association." Seconded and carried.

Dr. George W. Covey was at this time brought in the room by Drs. Barry and Lehnhoff and introduced to the House of Delegates by President pro tem Stark. Dr. Covey gave a short talk in appreciation of the honor given him.

The amendment to the By-Laws Chapter 8, Section 2: Change to read: "The Committee on Scientific Work shall consist of five members, the Secretary of the State Association and the Chairman and Secretary of the Medical and Surgical groups representing the respective specialties usually grouped under such heads. The first appointments to this Committee shall be for one, two, three and four year terms respectively. Each succeeding year upon recommendation of the Committee it will be the duty of the President to appoint one new member to this committee for a term of four years, the member during his fourth year to be chairman. This committee shall have full charge in making arrangements for all scientific work in relation to the annual State meeting subject to the Constitution and By-Laws. Fifteen days previous to any annual session it shall prepare and issue a program."

Chapter 6, Section 1, to read: "The President shall open all meetings of the Association. Sub-chairmen for the morning, afternoon, or evening sessions appointed by the Committee on Scientific Work shall preside during these respective sessions after having been opened by the President. The President shall preside at all meetings of the House of Delegates; shall appoint all committees not otherwise provided for; etc.; etc."

These amendments, as proposed by the Program Committee automatically void all other conflicting By-Laws."

After discussion of these two amendments to the By-Laws, Dr. Davis made a motion that we strike out from the report of this Committee the words "upon recommendation of the Committee," and leave it altogether in the hands of the President. Seconded and carried.

The amendments submitted by Dr. Decker relative to the duties of the Secretary, Chapter 6, Section 4, to strike out the sentence which reads "He shall act as chairman of the Committee on Scientific Work" and Chapter 11, Section 2, which reads: "At each Annual Meeting a chairman and secretary shall be appointed by the president, the chairman to serve for one year and the secretary for two years, and both until their successors are appointed." Which section is to be repealed, were discussed.

A motion was made that these two amendments be adopted. Seconded and carried.

A resolution pertaining to FERA work in Cedar, Dixon, Dakota, Thurston and Wayne Counties and submitted by that County Medical Society was read by Secretary Adams as follows: "At the regular bimonthly meeting of the Cedar-Dixon-Dakota-Thurston and Wayne County Medical Society, held at New Castle, Nebraska, March 28, 1935, the following motion was made, seconded and carried: "That a committee be appointed by the chair instructed to express the disapproval of this society regarding the action of the Nebraska State Medical Association committee on Public Welfare and Legislation at their meeting at the University Club rooms on August 1st, 1934.

The chair appointed the following committee: Dr. A. E. Cook, Randolph; Dr. John Buis, Pender; and Dr. Walter Benthack, Wayne.

The Committee reported as follows:

Whereas there is almost unanimous disapproval among country practitioners with the present FERA regimentation and,

Whereas the said FERA regimentation reduces the fees of the general Country practitioner approximately 75%, instead of 50%, and,

Whereas the present regimen appears much more favorable to the men doing special lines of work than to the general country practitioner,

Whereas those members who have not signed the present FERA contract are being discriminated against, although they are tax-payers and legally licensed to practice medicine, and,

Whereas we believe that no plan should receive approval of any committee unless it assures an equality of consideration for all members of the medical profession, specialist and general practitioner alike,

Therefore: Be it resolved that we disapprove of the present plan of FERA action as being manifestly unjust to the men in general country practice.

Be is resolved that we respectfully ask that the House of Delegates appoint a special committee to deal with this vexing question, the personnel of said committee to consist of at least 50% of men engaged in general country practice.

Be it further resolved that no committee, or group of physicians, dealing with this question, shall assume authority in dealing with any governmental relief organizations without first having approval of the House of Delegates, in special or regular session.

Be it further resolved that a copy of these resolutions be sent to the secretary of the Nebraska State Medical Association with a request that they be read at the first regular session of the House of Delegates at the annual meeting of the Nebraska State Medical Association to be held in Omaha, Nebraska, May 14, 15 and 16, 1935."

A motion was made by Dr. Davis that this resolution be received and placed on file. Seconded and carried.

A motion was made by Dr. J. E. M. Thomson that a Fracture Committee be organized in the State of Nebraska to correlate the activities of the Fracture Committees of the American Medical Association and of the American College of Surgeons. Seconded and carried.

The same committee composed of Dr. A. C. Barry and Dr. H. J. Lehnhoff were appointed by the chair to present the president-elect, Dr. George W. Covey, at the General Sessions.

A motion was made that the 1936 meeting be held in Lincoln. Seconded and carried.

Inasmuch as the House of Delegates has elected a new chairman of the Campaign Committee a motion was made that the House of Delegates wish to express their whole hearted appreciation for the splendid work that Dr. Hohlen has done as chairman of that Committee. Seconded and carried unanimously.

A motion was made by Dr. Davis that the House of Delegates extend to the Program Committee a vote of sincere thanks for the splendid way in which the program was conducted this year and also to the Omaha-Douglas County Medical Society a vote of thanks for their splendid entertainment of the Nebraska State Medical Association. Seconded and carried.

A motion was made that the House of Delegates extend to the Fontenelle Hotel a vote of appreciation for their courteous treatment of the Nebraska State Medical Association. Seconded and carried.

A motion was made by Dr. Bryson that the House of Delegates adjourn. Seconded and carried.

### ROLL CALL—HOUSE OF DELEGATES

| | | | |
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| Adams—H. S. Andrews | p | p | a |
| Boone— | a | a | a |
| Box Butte—Joseph Kuncl | a | a | a |

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|---|---|---|---|
| Buffalo—Ward Powell | p | p | p |
| L. C. Albertson | a | a | a |
| Burt—H. W. Benson | p | p | p |
| Butler—C. E. Beede | a | a | a |
| J. H. Downing | a | a | a |
| Cass—Herbert Wortham | a | a | a |
| R. N. Tyson | a | a | a |
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| Walter Benthack | p | a | p |
| John Buis | a | a | a |
| Chase-Dundy-Red Willow-Furnas-Hayes-Hitchcock-Frontier— | | | |
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| C. R. Carlson | a | a | a |
| D. L. Morse | a | a | a |
| Dr. O. P. Roseneau | a | p | a |
| B. I. Mills | a | a | a |
| J. F. Premer | a | a | a |
| A. B. Fellers | a | a | a |
| E. F. Leininger | p | a | p |
| J. E. Prest | a | a | a |
| H. H. Grosbach | a | a | a |
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| Holt-Northwest | a | a | a |
| Howard—M. O. Arnold | p | p | p |
| A. H. Holm | a | a | a |
| Jefferson—Roscoe P. Luce | a | a | a |
| D. O. Hughes | a | a | a |
| Johnson—G. J. Rubleman | a | a | p |
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| Lincoln—A. V. Wortman | p | p | p |
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| Antelope-Knox-Cuming—John D. Reid | a | a | p |
| John H. Calvert | p | p | p |
| E. E. Curtis | a | a | a |
| W. E. Wright | p | p | p |
| H. W. Francis | a | p | p |
| Merrick— | a | a | a |
| Nance—H. A. Cleary | a | a | p |
| Nemaha—Edgar Cline | a | a | a |
| B. F. Lorance | a | a | a |
| Northwest Nebraska— | a | a | a |
| Omaha-Douglas—Ernest Kelley | a | a | a |
| J. Borghoff | a | a | a |
| M. C. Howard | p | a | p |
| Harry T. Sullivan | a | a | a |
| J. D. McCarthy | p | a | p |
| E. L. MacQuiddy | a | a | a |
| James Kelley | p | a | p |
| J. F. Langdon | a | a | a |
| Charles F. Moon | p | p | p |
| Chester Thompson | a | a | a |
| Otoe—D. D. Stonecypher | p | a | a |
| W. D. Gibbon | a | a | a |
| Pawnee—J. F. Prendergast | a | p | p |
| A. B. Anderson, Jr. | a | a | a |
| Phelps—Theo. Peterson | p | p | p |
| J. S. Magill | a | a | a |
| Platte—E. E. Koebbe | a | p | a |
| F. H. Morrow | a | a | a |
| Polk—E. G. Brillhart | p | a | a |
| J. B. Williams | a | a | a |
| Nuckolls—C. L. Phillips | p | p | p |
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| Wm. Shepherd | a | a | a |
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| Scottsbluff—G. W. Pugsley | a | a | a |
| W. C. Harvey | p | a | a |
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| Valley— | a | a | a |
| Washington—A. J. Cameron | p | p | p |
| R. R. Donley | a | a | a |
| Webster—E. V. Lewis | a | a | a |
| S. H. O'Neill | p | a | p |
| York—H. O. Bell | a | a | a |
| R. E. Harry | p | a | a |

## COUNCILORS

| | | | |
|---|---|---|---|
| A. P. Overgaard | p | p | p |
| H. J. Lehnhoff | p | a | p |
| W. R. Boyer | p | p | p |
| E. L. Brush | p | a | p |
| Homer Davis | p | p | p |
| D. D. King | a | p | p |
| H. E. Potter | p | p | p |
| W. J. Douglas | a | a | a |
| R. D. Bryson | p | p | p |
| L. W. Rork | p | p | p |
| O. R. Platt | p | p | p |
| A. L. Cooper | p | p | p |

## OFFICERS

| | | | |
|---|---|---|---|
| President—1st meeting—Joseph Bixby | p | | |
| President-elect—1st meeting—Claude Selby | p | | |
| President—Claude Selby | | p | p |
| Vice Presidents—A. E. Buchanan | a | a | a |
| A. A. Conrad | a | p | a |
| Secretary-Treasurer—R. B. Adams | p | p | p |

## EX-PRESIDENTS

| | | | |
|---|---|---|---|
| W. O. Bridges | a | a | a |
| F. A. Long | p | p | p |
| P. H. Salter | a | a | a |
| J. P. Lord | a | a | p |
| I. N. Pickett | a | a | a |
| E. W. Rowe | p | a | p |
| W. F. Milroy | a | a | a |
| C. L. Mullins | a | a | a |
| H. W. Orr | a | a | p |
| M. S. Moore | a | a | a |
| B. F. Bailey | p | p | p |
| Morris Nielsen | p | p | p |
| Palmer Findley | a | p | a |
| H. J. Lehnhoff | p | a | p |
| H. E. Potter | p | p | p |
| B. R. McGrath | p | p | p |
| F. S. Owen | a | a | a |
| K. S. J. Hohlen | a | p | p |
| Lucien Stark | p | p | p |
| A. E. Cook | p | p | p |
| Adolph Sachs | p | a | p |
| Joseph Bixby—after 1st meeting | | a | p |

# In Memoriam

"In love he practiced and in patience taught
The sacred art which battles with disease;
Nor stained by one disloyal act or thought,
The holy symbol of Hippocrates."

| | |
|---|---|
| Geo. A. Morrison | May 30, 1934 |
| Frederick A. Sedlacek | May 30, 1934 |
| Roscoe E. Schindel | June 15, 1934 |
| D. R. Lee | June 18, 1934 |
| William H. Pallett | June 19, 1934 |
| William L. Heilman | July 16, 1934 |
| Edward A. Creighton | August, 1934 |
| Warren F. Eckles | August 16, 1934 |
| George Roeder | August 29, 1934 |
| Walter G. Rundle | September 10, 1934 |
| W. J. Redfield | September 22, 1934 |
| Clara B. G. Cross | September 29, 1934 |
| Leigh H. Womble | October 18, 1934 |
| Earl E. Boyd | November 5, 1934 |
| Julian R. Blackman | November 11, 1934 |
| Albro J. Ames | November 14, 1934 |
| E. L. Bridges | December 4, 1934 |
| Sheldon E. Cook | December 31, 1934 |
| Edward Tanner | January 28, 1935 |
| John G. W. Westerhoff | February 23, 1935 |
| John M. Birkner | March 1, 1935 |
| C. Van Dyak Basten | March 1, 1935 |
| William E. Packwood | March 5, 1935 |
| W. S. Evans | March 29, 1935 |
| H. M. Fitzgibbon | May 8, 1935 |

# In Memoriam

Gracious was he and kindly,
Guiding our work and plans
For fuller accomplishments.
His vision great, farseeing,
And he is gone. We loved him.
To us it seems too soon.
But God knows when our work is done
And he has called him home.

*John E. Summers*

**President Nebraska State Medical Association**
**1895-96**

**Died February 7, 1935**

# In Memoriam

"I would not grieve too much. The promise tells
That rest is his who sleeps so gently there;
Beyond the dull, slow tolling of the bells
Which mark his passing, life is free from care.

He has been called from pain and hurt and strife,
From all the ills which fall to flesh and clay,
He has been raised unto an ampler life,
Nor should we mourn too much who still must stay."

## *August Frederick Jonas*

**President Nebraska State Medical Association**
**1905-06**

**Died November 13, 1934**

The Nebraska State Medical Journal

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Vol. 20 July No. 7

## SOLIDARITY IN MEDICAL ORGANIZATION

The American Medical Directory published during the past year lists 1772 Nebraska physicians. The latest report from the secretary-treasurer gives the present membership in the Nebraska State Medical Association at 1083—slightly above 60% being members of the organized profession. There are 93 counties in Nebraska, a number of which are wholly unorganized. All of this points to the fact that there is still a lot of organization work to do in Nebraska. From 15% to 25% more must be eligible to membership in the association.

With the threat of social medicine before the profession there is the most urgent need to close the ranks so the profession may present an united front when and if the matter ever comes to a crisis.

Recent comments of some noted physicians:

"The time for complete, strong and militant organization is at hand. That organization must be entirely within ourselves. Our component organizations should be the basis of all effort and every member should lend his wisdom, his constructive criticism and best efforts to those whom he delegates to control and direct the practices of our profession. * * * Every effort of our component societies should be made to bring into our state society all properly qualified medical men. The antagonism of the misinformed and non-cooperative doctor is a marked obstacle to successful organization."

"Let us go actively into politics for keeps and restore to politics its proper meaning—the science of government. In political office there is far greater need for honesty and reason than for familiarity with technical details of legislation or administration."

"The world, the nation, the profession are in a period of reorganization and revolutionary change in which we must take part. Individualism and capitalism are weakening, communism and socialism threaten. A new deal faces medicine which like our National New Deal must be experimental. * * * This is a time when the profession must present an united front. As stated in our original code: 'By union alone can medical men hope to sustain dignity and extend the usefulness of the profession.' And further they must 'firmly, yet mildly insist on their rights; and this not with a glimmering perception and faint avowal, but rather with a full understanding and firm conviction'."

"Every ethical physician should belong to the state society. In numbers there is strength. United we stand, divided we fall. An united profession can brush away any and all obstacles. It is next to impossible to find a really successful physician who has attained fame outside of organized medicine. Are all eligible physicians in your community members of your county medical society? If not, get busy and try to induce all such to join at the earliest opportunity."

"How many doctors in your county that are eligible to membership do not belong? With all the unrest that is going on today, it is necessary that the medical profession should be organized 100%. Heretofore doctors were doctors, but today a doctor must be at least part politician. He must be politician enough to inform his patients and his friends that social security can be had without law and lawmakers and that the county medical society can supply medical security for all within their domain."

It was with a keen perception of the needs of the hour that the House of Delegates at the last annual meeting endeavored to meet the situation confronting the profession by making provision for employing by next year a "travelling secretary" whose duty it shall be to so contact the profession as to result in much increased membership so that the organized profession can present an united front on all problems affecting the profession.

## MEDICAL AND WELFARE WORK IN THE REPUBLICAN VALLEY FLOOD

The Republican Valley flood, the worst in history of Nebraska, costing well over a hundred lives and millions in property damage, brought out the very best qualities in the medical profession in unselfish continuous day and night service—sans rest or sleep—to injured flood victims.

Reports of heroic efforts to give service are told by the press. One especially notable case was that of a physician who attempted to cross a swollen stream horseback on an errand of mercy, the horse being carried away and drowned and the hapless physician-rider being saved only after being carried down stream and rescued when about exhausted. The 110th medical regiment and the 130th ambulance company of the Nebraska National Guard did notable service in rescue work and in recovering bodies of the drowned.

The National Red Cross at once established headquarters in the striken area, placed workers on the scene and is doing noble work. The Nebraska Department of Public Welfare supplied disinfectants, water purifiers and anti-typhoid vaccine for the sufferers in the flooded area. Destruction and pollution of water works and pollution of wells made this imperative. Fortunately, no epidemics have appeared in the flooded area.

Governor Cochran hastened to the stricken area by airplane from Washington, made a tour of the damaged territory and greatly aided a downcast populace to take courage by promising as far as possible immediate reparation. The federal government has given a grant to assist in rehabilitation.

## THE NEBRASKA SOCIETY FOR CRIPPLED CHILDREN ENDORSED

It will be recalled that early this spring the Nebraska Society for Crippled Children sponsored a campaign throughout Nebraska for the sale of Opportunity Seals to create a fund to aid in the care and treatment of crippled children. Possibly through misapprehension of the real objects of the society and of the funds to be derived from the sale of the seals many who would otherwise have contributed their bit did not do so.

The Nebraska State Medical Association, through its House of Delegates, passed a resolution in effect that we approve and endorse the objects, aims and purposes of the Nebraska Society for Crippled Children.

The work sponsored by this society is a noble one and its endorsement by the Nebraska State Medical Association is eminently proper. One of the members of the society is quoted as saying, that this endorsement is the biggest thing that has been done. Secretary Mary Potts writes to the *Journal*: "We all appreciate its importance and how much it will mean for the Nebraska Society for Crippled Children."

In a letter from the president of the society, Mr. Robert Trimble, referring to the sale of Opportunity Seals, he says:

"The returns are still coming it, and while we have not attained the hoped for goal, financially, we feel we have done very well considering these stressful times. We shall be able to maintain limited headquarters at this address—536 Medical Arts Bldg.—and contine contact and educational work and through cooperation and coordination of and with other agencies, accomplish effective and practical benefits to Nebraska's crippled children."

All persons with an interest in welfare work will give their endorsement to the Nebraska Society for Crippled Children and support the Opportunity Seals.

## YOUR PRESIDENT APPOINTS COMMITTEES

### PROGRAM COMMITTEE

Because of the versatility and experience of the men who constituted the program committee, also due to the fact that this committee conforms in every respect to what is to be desired in the matter of building the best scientific program possible for our State Medical Association, and in accordance with powers vested in me by the amendment to Chapter VIII, Section 2 of the Association By-laws, and in appreciation of the high class program produced by them at the last convention. The following will constitute the membership of the committe on scientific work:

| | |
|---|---|
| Morris Nielsen, Blair, Chairman | One year |
| J. W. Duncan, Omaha | Two years |
| J. D. McCarthy, Omaha | Three years |
| Roy H. Whitham, Lincoln | Four years |

It is to be understood that the secretary of the association is, in accordance with the by-laws, the constant member of this committee, thus bringing its membership to the required five.

### INSURANCE COMMITTEE

This committee needs enlivening and should make a study of the types of mal-practice insurance available for individuals in Nebraska and should make a report of its findings to the *Journal*, so that men who desire it may, through that medium, receive constructive information in such matters which, in the hour of need, are of extremely vital importance.

With such an idea of usefulness and anticipated activity I am herewith requesting the following individuals to accept such a commission and become active along lines suggested.

| | |
|---|---|
| Morris Nielsen, Chairman | Blair |
| Robert D. Schrock | Omaha |
| Frank H. Burnham | Arnold |

### COUNCIL ON MEDICAL EDUCATION

With a view of receiving some very practical and constructive recommendations from a medical educational standpoint, and as well, to attempt to raise the professional median in our state, and that the association may be of material value educationally to its component members, the reappointment of the seasoned, indefatigable chairman is hereby made with the request that he call his committee together and outline a definite program for the ensuing year, and, with that hope the following names are herewith submitted to constitute the aforesaid council:

| | |
|---|---|
| J. Stanley Welch, Chairman | Lincoln |
| J. R. Nilsson | Omaha |
| Rudolph F. Decker | Byron |

### PUBLIC POLICY AND LEGISLATION

This committee has rendered a signal service to the profession at large during the past session of the legislature, and its individual members have sacrificed greatly both in time and money.

The personnel should be highly commended for their untiring and able handling of the many important matters that have come before them during the past year.

There appears on the horizon the possibility of being required to reaffirm our stand upholding the integrity of the profession in the event that the relief program is plunged into politics.

Knowing the qualities of the following men it is my desire that they serve us during the ensuing year in the capacities allocated to this most important committee:

| | |
|---|---|
| B. F. Bailey, Chairman | Lincoln |
| R. W. Fouts, Vice-Chairman | Omaha |
| K. S. J. Hohlen | Lincoln |
| J. W. Duncan | Omaha |
| E. W. Rowe | Lincoln |
| Lucien Stark | Norfolk |
| E. G. Johnson | Grand Island |

### SUB-COMMITTEE

This most important addition to the Public Policy and Legislation Committee had in the past served in the capacity of "pinch hitter" for the regular committee.

In my opinion this sub-committee should also be called upon to function; therefore, with such an idea in mind, it is with pleasure that the following individuals, who are always active in behalf of the interests of the profession, be appointed:

| | |
|---|---|
| Clayton Andrews, Chairman | Lincoln |
| O. R. Platt | North Platte |
| J. M. Willis | McCook |

—Claude A. Selby, President.

## NEBRASKA TUBERCULOSIS ASSOCIATION MEETING, MAY 14

The annual meeting of the Nebraska Tuberculosis Association was held in Omaha, May 14, 1935. Speakers at the afternoon meeting were Miss Harriette Brenenstall, District Supervisor FERA Nurses; Mrs. Florence Zulauf, Field Worker State Hospital for Tuberculous, Kearney; and Mrs. Florence Breed, National Tuberculosis Association, New York City.

As guest speaker at the dinner meeting, Dr. H. G. Wood of Mayo Clinic, presented most convincingly the value and effectiveness of the Federal program for the eradication of bovine tuberculosis in the United States. The employment of tuberculin testing as adopted in this country, as against the British practice of merely eliminating the animals obviously diseased, has resulted in a remarkable contrast in results accomplished. England continues to struggle with the problem of a 40% infection of her cattle, and with it the continued prevalence of glandular and bone tuberculosis in the young human population. In America "scrofula" as known so commonly a few years back is now very infrequent and the crippled child, the pathetic victim of joint or bone tuberculosis, is scarcely to be seen in a modern community.

Dr. Wood analyzed and explained the practicability and the ultimate benefit which will result from the extensive tuberculin testing of children, high school, college and other groups, through its educational value and influence, as well as its effectiveness in discovering both early and hidden cases of the disease. The organization, development and application of the knowledge and principles of tuberculin testing, followed by x-ray checkup, constitutes the next major offensive in the program for the control of tuberculosis.

The question of "collapse therapy" as an aid to the usual routine of rest, etc., were discussed by Dr. Wood, from therapeutic pneumothorax to the more recently developed procedures of phrenic exeresis, intrapleural pneumolysis, and thoracoplasties, and illustrated by slides and explained in a simple and lucid manner, completing a very interesting exposition for a mixed audience of about 250.

New directors added to the board were Dr. J. Harry Murphy and Allen Hupp, Omaha; and Mrs. L. C. Maust, Falls City.

Following the dinner meetig, the new board of directors met and elected officers and executive committee as follows:

Dr. F. W. Heagey, President.
Dr. John F. Allen, First Vice-President.
Fred W. Conrey, Second Vice-President.
Clark S. Haas, Secretary.
C. J. Claassen, Treasurer.
Mrs. H. C. Sumney.
Mrs. J. E. Davidson.
Vincent C. Hascall.
Dr. Joseph A. Weinberg.

## PSYCHIATRY AND GENERAL MEDICINE

Deploring the misunderstanding between psychiatrists and practitioners of general medicine, Dr. C. F. Williams, president of the American Psychiatric Association, urged that the breach, already grown narrower, be eliminated entirely by a better understanding by each group of the concepts and practices of the other. In this connection he said:

"The present breach between psychiatry and general medicine, happily becoming narrower every year, has been occasioned by the failure on the part of general medicine to take into consideration this necessity of considering a human beng not only as a biologic whole but also his reationship to his environment. In the psychiatric ield there has been developing a pronounced rection against the cold, biological attitude of clincal medicine, resulting in a swing toward the hypothetical approach. As a result we observe oday two distinct attitudes, the one emphasizing he laboratory method, the other relying more pon observation and utilizing the technique of he sociologist. This tendency among psychiarists to stress environmental factors has perhaps nnoyed the clinicians as much as the latter's mphasis upon chemistry, physics and biology has rritated the psychiatrists.

"The breach has been further widened by the xertions of well meaning but often poorly inormed individuals whose purpose it is to popularize and promote the social aspects of mental hygiene. What we need, of course, is not this army of popular lecturers, cult 'professors', freudian biographers and novelists, but sound psychiatric training as a part of medical education. The clinical physician must be given a better understanding of the importance of emotional and environmental factors in health and disease. At the same time, we, as psychiatrists need to adopt more of the conservative, laboratory minded attitude of the trained clinician."

## FULL-TIME EXECUTIVE SECRETARY

. . . I would like to comment on a suggestion made by some of our oustanding members. This suggestion is that the work of the society has become so great and with so many diverse interests that the society should have a highly paid full-time executive secretary who could attend to all of these matters now attended to by our committees. I will grant there might be an improved efficiency but I doubt if that would offset the good that comes from work done for the society by its members. Not only is the member benefited in breadth of outlook by unselfishly performing a task for his society and his brother physicians, but I believe also the audience the society receives through his personal efforts is more sympathetic if he appears as a member of our society contributing his time and effort unselfishly for a cause than if we attempt to further a cause by having ourselves represented by a full-time paid executive secretary to whom the work in hand is just a part of his job. This is a large society located in a small geographic territory and from my vantage point I feel certain that we have great numbers of able men to do the work and by a proper division of labor it can all be accomplished by ourselves. Making each year bigger and better than the year before and that natural desire to keep up with the Jones' leads inevitably to an extravagance of doubtful value and a poor return. Maybe I am too old-fashioned and too conservative but I do believe in building slowly and well. . . .

—From Address of President Bennett,
The Medical Society, Dist. of Columbia.

## SOME NEBRASKA PIONEER PHYSICIANS: DR. GILBERT C. MONELL

Dr. Gilbert C. Monell came to Omaha in 1857 from Denver where he had established the *Rocky Mountain News*. He was born in Montgomery, New York, in 1816. He had practiced medicine in Newburg, N. Y., with much success for some years before coming west.

Dr. Monell was a man of character and qualities of leadership which was soon recognized in the new community. He was the president of the first board of education in Omaha.

Several efforts had been made during the earliest years in Nebraska history to organize a state medical society; but it was not until May 11, 1868, that thirteen physicians met in the office of Dr. J. H. Peabody, Omaha, and organized the Nebraska State Medical Society. Dr. Monell was elected the first president and at a subsequent meeting held in Omaha, June 24, 1868, a constitution and by-laws was adopted.

Dr. Monell's daughter married Phineas Hitchcock, United States Senator from Nebraska. To this union was born the late Gilbert M. Hitchcock, recently United States Senator from Nebraska and for many years owner and editor of the *Omaha World-Herald*.

Dr. Monell retired from practice in 1870. In 1880 on a trip to Detroit he died, aged sixty-four years.

## EDITORIAL PARAGRAPHS

Radium can now be made from common salt says *Popular Mechanics*.

More than 74 per cent of the medical students in Soviet Russia are women, it is reported.

The Fall clinics of the Kansas City Southwest Clinical Society will be held October 7 to 10, inclusive.

A bit of religious philosophy picked up: "It is not stranger that man should live again, than that he should have lived at all."

Photographs of the inner depths of the eye may now be made by an instrument devised at the Leland Stanford University School of Medicine.

The profoundest sympathies of the profession go to Dr. John Prentiss Lord, Omaha, in the passing of Mrs. Lord after companionship of fifty years.

It is understood that the group of Nebraska Medical Women as such, has disbanded, but that there will be an Omaha and a Lincoln group, so organized.

Ice water and iced drinks are more popular in the United States than anywhere else in the world. Foreigners are aghast at our consumption of cold beverages.

Summer campers usually eat too few vegetables and too much meat and starches. When people are close to the supply of fruits, why do they eat out of tin cans?

Whereas, in Nebraska in 1929, there were but 7 deaths from excessive heat, in 1934 there were 132 deaths attributed to that cause. And no wonder to those who survived that fiery furnace last summer.

Want of sufficient support threatens the *Annals of Medical History*, published by Paul B. Hoeber, New York City. It is a high class magazine devoted to history of pioneer physicians. Subscription price is ten dollars.

Lest we forget: An aged indigent physician whom we were once proud to honor with the presidency of our association needs our sympathies and financial assistance. Contributions may be sent to the editor of the *Journal* at Madison.

The efficiency of anti-typhoid innoculation is well shown in the report that in the last ten years there were but 83 cases of typhoid fever in the army. Of this number about 25% occurred in a detachment on a practice march in which hygiene was neglected.

Howard Ambruster of erstwhile "rotten ergot" fame is again to the fore with a booklet entitled "Why Not Enforce the Laws We Already Have?", the gist of which is that we should enforce the pure food laws we have rather than seek to amend the laws. Ambruster is a ferninster.

We like to reflect on the recent annual meeting and one thing that pops up is the large attendance at the general sessions during the three days, whereas in previous years many remained but one day. There is a reason and that reason must be that the program and scheduling thereof, appealed.

A significant matter in the annals of the American Orthopedic Association is the fact that within recent years four of the presidents have been men from the middle west—Henderson of Rochester, Minn., Steindler of Iowa City, Gaenslen of Milwaukee, and now Winnett Orr, of Lincoln. This shows an appreciation of mid-western orthopedic workers.

It is stated in *Science* that it has now been pretty definitely shown that a virus is the cause of influenza; that the same virus strain caused the epidemic in Puerto Rico in 1934, in Philadelphia in 1935 and in London in 1933, 1934 and 1935. Laidlaw, an English scientist, thinks it is exceedingly probable that the virus of swine influenza is identical with that of human influenza.

"Doctor" as a title was invented in the twelfth century. First there were Doctors of Law and Doctors of Divinity. William Gordenio was the first person upon whom the title of Doctor of Medicine was bestowed. He received it from the College of Asti, in 1329. Today, in America alone, there are nearly 150,000 persons who have a right to sign themselves "M. D."—Doctors of Medicine.

Campbell in *Journal, Michigan State Medical Society* for March, states nicotine poisoning such as results from smoking from 18 to 24 cigarettes daily is prejudicial to efficient child bearing; that it impairs the nervous system, predisposes to respiratory infection and that it has an unfavorable effect on the circulatory system. He suggests a limit of one to five cigarettes a day for prospective mothers.

Motor accidents will increase as the summer wears on. Soon most of the country's 32,000,000 cars will be swarming the roads in the United States. Somebody dies from a motor accident every 15 minutes. The peak is reached in early fall. Major causes of accidents are: Speed, improper signalling, running out of line, turning, sudden stopping, grade crossings, faulty mechanism, intoxication.

According to our state department of health "accidental" deaths have reached near the top of the list. It is becoming more questionable whether this is a proper classification. Several forceful writers subscribe to the thought, "Accidents do not just happen; they are caused." Individual and collective acceptance of this thought as a "dictum" will result in fewer deaths or a more factual classification.

Reports from the joint meeting of the Canadian Medical Association and the American Medical Association at Atlantic City two weeks ago are that of a marvelous and very enjoyable meeting. Such joint meetings must have great scientific and social values. The total number registered Monday—the day before the meeting opened—was 2,472 of whom 20 were from Nebraska. Further comment in the August *Journal*.

The Latin American Congress of Physical Therapy, X-ray, and Radium will hold its first annual meeting in Mexico City from August 29th to September 5th, it was announced today by Dr. Cassius Lopez de Victoria, executive director of the organization. The National University of Mexico will act as host to their North American colleagues, and the government will participate in extending hospitality to the delegates.

Fruits should form part of the daily diet. They help preserve the teeth, they supply valuable mineral salts to the body, they are laxative. No ration is well balanced that does not contain fruit. To attain and maintain good health, a balanced ration is of great importance. This does not mean fancy foods, or highly seasoned foods, but plain simple foods in variety. Most people eat too much meat, especially in the summer time.

The American Congress of Physical Therapy announces two important events: 1. An instruction class covering the field of physical therapy for September 5, 6, 7, 1935. 2. The fourteenth annual scientific and clinical session for September 9, 10, 11 and 12, 1935. Both of these events will be held at the Hotel Kansas Citian, Kansas City, Missouri, and every detail has been arranged to give the busy practitioner and technician a full week of intensive study in physical therapy.

More than 2,000 professional public health workers from every state in the Union, from Canada and from Mexico, will assemble in Milwaukee the week of October 7 at which time the following organizations will be in convention: American Association of School Physicians; International Association of Dairy and Milk Inspectors; Conference of State Sanitary Engineers; International Society of Medical Officers of Health; Association of Dairy, Food and Drug Officials; Conference of Wisconsin Health Officers.

At the meeting of the American Orthopedic Association meeting held in Philadelphia last month, Dr. H. Winnett Orr, Lincoln, was elected president-elect and will assume the presidency at the Milwaukee meeting in 1936. In all likelihood, if precedent is followed, the 1937 meeting of the association will be held in Lincoln, as it is customary to have the annual meeting in the home city of the president. Since the 1937 meeting will be the fiftieth anniversary of the founding of the association, Dr. Orr's presidency will be historically significant.

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## OBITUARY

**Chester D. Barnes,** Tecumseh, Nebr.; Rush Medical College, date uncertain; practitioner at Tecumseh since 1898; active in community affairs; member, Nebraska State Medical Association; died May 25, 1935, aged about sixty-nine years.

Three sons and two daughters survive. Dr. E. M. Barnes, Veterans' Hospital, Lincoln, is a brother.

**Frederick Epplen,** Seattle, Wash., (not in practice), Rush Medical College, 1906; practitioner in Omaha for some years; later in practice in Spokane, Wash.; died of sleeping sickness, May 25, 1935, aged about fifty years.

A wife and daughter survive.

**Ernest W. Landgraf,** Omaha; Creighton Medical College, 1906; in practice in Omaha fifteen years; member, staff of St. Joseph's hospital; for past ten years instructor in surgery, Creighton Medical College; died of pneumonia June 2, 1935. A widow survives.

**William Cramer,** Kansas City, Mo.; Hahnemann Medical College, Chicago, 1888; an early day practitioner at Ord; for a number of years in practice in Kansas City, Mo.; died May 31, 1935, aged sixty-nine years.

### INDUCTION OF PRESIDENT, MAY 14, 1935

At the time appointed for the induction of the President the following proceedings were carried out:

DR. ADOLPH SACHS, (Omaha): It is my pleasure to introduce President Joseph Bixby, who will introduce the President-Elect.

DR. JOSEPH BIXBY, (Geneva): Mr. Chairman and Members of the Nebraska State Medical Association: The past year has been a year of stress and strain for the members of our profession, yet organized Medicine has gone on with its work. In Nebraska, our Legislative Committee and Campaign Committee have worked shoulder to shoulder against the vicious legislation that was introduced into our legislature affecting our profession. The majority of their efforts have been successful. They have received the help of the men out in the field, and this helped to make their work more permanent. The officers of the Association have spent much of their time in talking against the viciousness of socialized medicine, and have met with loyal support.

Now the supreme pleasure comes to me in being accorded the privilege of introducing to you my successor—one whom you all know; one who has spent much time and labor in the interests of our profession; one who is young and ambitious and fearless in the fight for organized Medicine; one who has many acquaintances and contacts which will enhance his leadership for the present year.

I take great pleasure in introducing to you our President-Elect, Dr. C. A. Selby, of North Platte. (Applause, audience rising).

### RESPONSE

DR. C. A. SELBY, (North Platte): President Joe, Mr. Chairman, and All My Good Friends: It is rather a difficult thing to begin an administration.

One of the outstanding honors to be bestowed upon a member of the medical profession in Nebraska is to be chosen to guide the destinies and to protect the precepts of the Nebraska State Medical Association, which, for sixty-seven years, has stood for the highest ideals and the noblest sentiments which actuate medical men in the pursuit of knowledge, and the application of such attained knowledge to the alleviation of suffering, and the prevention and care of disease, thus adding materially to the prolongation of and comfort to life.

Needless to say, I am deeply grateful for the honor you have given me and the confidence you have manifested in me by placing me in the position I now occupy. My utmost efforts shall be devoted to the end that I may prove worthy of that honor and that the confidence may maintain always.

In assuming the duties of president of this organization, I am mindful of the manifold and serious responsibilities that pertain to the furtherance of the great service it has heretofore rendered, and I beg of you individually and collectively to heed the call to action and service, that we may thereby render to the state and its people the maximum in leadership and so restore confidence to a perplexed and distressed citizenry, and that we may direct aright the trend of our own great profession that it may clearly and in unity pursue its course through the dawn of this new era of reconstruction.

It is my desire, in assuming the duties as president of this organization, to do the things which may be necessary to place the State Medical Association, in point of service to its membership, in such importance that those eligible to belong who are now outside its portals will choose to espouse the common cause of the profession and enlist with us.

It shall be my aim to endeavor to promote ways and means within the association whereby we may lay a definite foundation for obtaining the services of a full-time paid secretary, and thereby become so closely organized as to be able without stint to provide adequately for the preservation of the profession to those who constitute it.

This is not new, but it is important that we should have an individual in whom we can place the responsibility for organization—a man who can spend his entire time in looking after the interests of this association. I do not mean he should supercede the duties of the various officers and committees. This man should be given the job of selling the association to the doctors.

My efforts shall be unceasingly directed toward making the state association supercede all other similar organizations in its scientific achievements and value to the profession, which, if accomplished, will have attained for us much in cementing the medical profession into a unit.

Without the support and loyal help of you who comprise this association nothing can be accomplished; so again I beg of each and all of you to aid in the achievement of these plans which can make us independent, and of service to the entire nation.

### PROGRAM COMMITTEE LOOKS TO THE FUTURE*

The Program Committee has decided not to tell you how anybody holds membership in the organization, or anything of that kind; but we do want to plead with you and ask you to consider carefully the program as laid out for the past year, with which you are now familiar. The idea has been to make the Nebraska State Medical Association outstanding, being the only factor absolutely necessary for the promulgation and advancement of teaching of modern medicine. A good many organizations are existing which are carrying on with little or no attendance, and the economic distress of a good many of their members.

Dr. McCarthy has labored diligently to outline this thing for us, and we are glad to help him put it across. It is absolutely impossible to put on a program such as is necessary to make the Nebraska State Medical Association worthy of its name without a certain amount of adequate talent. In order to have that talent, it is necessary for us to have more money than we have had heretofore to secure such talent. In the Council, we will ask them to allow a greater scope for the financial stability of such a movement, and we hope you will get behind us so that our neighboring states cannot have anything over us.

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*Report given before the Scientific Sessions during the annual meeting Nebraska State Medical Association, Omaha, May 14-16, 1935.

We have been rather handicapped materially for a good many years in not having the necessary out-of-state talent to come here, and we do not want to be put in that embarrassing position any more. The men we have gotten here—not only outside the state, but local—have been carefully combed for the thing we thought would be of outstanding interest to you all.

The program is properly spaced for those who have only a little time at their disposal, so that they can look at the program and ascertain the period any particular subject will be discussed, which will enable everybody to make his time fit the particular phase in which he is interested.

Please get behind your Program Committee; support them financially and with your attendance, and I can assure you its purposes and endeavors shall be to present a program such as will warrant your attendance.

—Morris Nielsen, Chairman.

### AUXILIARY NEWS NOTES

On the afternoon of May 14 the festivities for the Auxiliary Convention started with a tea and program at Aquila Court, with Mesdames Herman Johnson, F. W. Heagey and W. H. Stokes in charge. Dr. A. F. Tyler gave an interesting travelogue of his recent European trip.

The annual business meeting was held on the morning of the 15th at the Fontenelle. Mrs. H. R. Miner, president, presided and the work of the various officers and county auxiliaries was reported.

A letter of sympathy was directed sent to the Doctor Van Metre family of Fremont on the passing of Mrs. Van Metre.

In the same room in the Blackstone Hotel in which ten years ago the first formal meeting of the Auxiliary was held the tenth anniversary luncheon was held at 1 p. m. on the fifteenth. A doctor's daughter attired in silver handed the guests silver programs. The long speaker's table was draped in lavender cellophane, the flowers being lilacs and lavender, purple and yellow tulips. Mrs. J. J. Keegan as general chairman presided over the tiered and candled birthday cake and introduced the following past presidents: Mrs. F. A. Long, Madison; Mrs. Clarence Rubendall, Omaha; Mrs. A. P. Overgaard, Omaha; Mrs. E. W. Rowe, Lincoln; Mrs. B. F. Williams, Lincoln; Mrs. Morris Nielsen, Blair.

Mrs. A. B. McGlothlan, St. Joseph, Mo., was the honored speaker.

Mrs. Dale Clark sang, accompanied by Mrs. Howard Rushton.

The annual medical banquet was held on the evening of the fifteenth. Governor and Mrs. Roy Cochran graced the occasion by their presence. The final day's doings were reported in the June Journal.

Mrs. Arthur B. McGlothlan of St. Joseph, past president of the American Medical Association Auxiliary suggests prize essay competitions on the history of medicine as a means of interpreting the profession to the lay public.

Mrs. McGlothlan reads practically everything published for the layman in regard to medicine and the progress of the profession and disseminating such information has been an important part of her twelve years' service to the auxiliary. She believes in study, study, and more study of present day problems and trends as well as of the history and traditions of the profession if we are to accomplish the best public relations work. And, she says, this study can be done best at auxiliary meetings where true presentation of medical problems and free discussion is possible.

Mrs. McGlothlan recommends the following books for parents and teachers and the interested lay public in general:

"Frontiers of Medicine," by Morris Fishbein.
"Behind the Doctor," by Logan Clendenning.
"Devils, Drugs, and Doctors," by Haggarth.
"Annals of Medical History," edited by Dr. Francis R. Packard.

A wide range of study subjects is suggested for auxiliary programs: travel talks illustrated by lantern slides, occupational therapy with demonstrations, talks on prison welfare work, and medical history; besides the usual health subjects.

Mrs. McGlothlan says in effect, "We must be informed before we can interpret the medical profession to the laity."

## TUBERCULOSIS ABSTRACTS

### CLIMATE IN RELATION TO PULMONARY TUBERCULOSIS

The need for more exact knowledge of the influence of climate in the treatment of tuberculosis prompted this study of more than 150,000 deaths from pulmonary tuberculosis among the white population in 42 states in the United States Registration Area. A large body of opinion at the present time tends to minimize the importance with which climate has been credited for a number of years. While many of the reports that have been published indicate that altitude is beneficial in the treatment of tuberculosis, the majority of them evidence disagreement and are not highly conclusive because of the inadequate number of variables taken into consideration.

This statistical analysis covered 19 elements which, on the basis of a priori reasoning might be expected to influence the tuberculosis death rate. The nineteen elements were classified into two main groups: climatic, including latitude, altitude, average annual temperature, annual temperature range, daily temperature range, annual precipitation, relative humidity, sunshine, and wind velocity; non-climatic, including per capita personal income, occupational index, population density, per cent of the white population urban, per cent of the white population (10 years of age and over) illiterate, per cent of the white population foreign-born, per cent of the population colored excluding Mexicans, expenditures for public elementary and secondary schools per capita of the population 5 to 17 years of age, and expenditures by universities, colleges, and professional schools per capita of the population 18 to 23 years of age. The 19th element, the average death rate for the years 1928, 1929 and 1930 from all causes other than pulmonary tuberculosis, violence, and accidents per 100,000 of the white population adjusted for age might presumably reflect both climatic and non-climatic influences.

South Dakota and Texas were not included in the investigation because they were not a part of the Registration Area during the period for which the data were collected. Arizona, California, Nevada, and New Mexico were also eliminated because the great number of health seekers within their borders made their rates incomparable with those of other states and the information necessary to adjust for non-resident tuberculosis mortality was not available.

A study of the relation of each of the nineteen elements to each other and to the average pulmonary tuberculosis death rate from 1928 to 1930 for the white population, adjusted for age differences, resulted in the elimination of twelve of the elements as showing no connection with the variations in the pulmonary tuberculosis death rates in the 42 states. The remaining elements were altitude, daily temperature range, precipitation, sunshine, occupational index, illiteracy, and school expense. These seven elements combined were found to be conclusively significant and might be expected to account for the major part of the variations in the tuberculosis death rates between the different states. The four climatic factors were about equal in importance to the three-non-climatic elements, the degree of dependence of the death rate upon them being distributed as follows: illiteracy, 40 per cent; sunshine, 30 per cent; altitude, 13 per cent; expenditures of public and elementary schools, 11 per cent; annual precipitation, 4 per cent; daily temperature range, 1 per cent; occupational index, 1 per cent. It is interesting to note that the non-climatic factors found to influence the pulmonary tuberculosis death rate were, in general, indicators of standards of education rather than measures of economic condition or population density. The analysis indicated that negligible significance was attached to economic condition as measured by per capita income or to exposure to infection as represented by population density, per cent of the white population urban, and variation in occupation.

Tuberculosis mortality rates which might be expected on the basis of the foregoing findings were computed for each state and found to correspond closely with the observed death rates. The slight differences between the actual and the expected rates were thought to be due to random elements in the data, errors of observation, and, also, to the extent to which the present study had failed to account for all factors determining the variation in the death rates among the different states.

The states were combined into five geographical divisions, each of which represented fairly uniform conditions. A comparison of the pulmonary tuberculosis death rate in each division with the rate to be expected on the basis of the climatic factors and the rate to be expected on the basis of the non-climatic factors showed that as the death rate declined, the expected rate also declined in approximately the same proportion. The South, which experienced the highest death rate, also had the highest expected rate. The North had almost exactly the expected death rate. The particularly favorable non-climatic factors in the Pacific North West served to lower the death rate below that which might be expected from the not especially favorable climatic conditions. The relatively low death rate in the West Central division might be accounted for by relatively favorable conditions, both climatic and non-climatic. Since the non-climatic factors in the Rocky Mountain States were not appreciably more favorable than in the West Central and Pacific States, the remarkably low death rate for the semi-arid high altitude monutain states seemed to be explained satisfactorily only on the basis of uniquely favorable climatic conditions.

The five states with the lowest tuberculosis death rates for the white population had an average of 21.4 deaths per 100,000 of the population, and the five states with the highest rates averaged 73.8 deaths per 100,000 of the population. It may be of interest to note that the low death rate group averaged 4,090 feet in altitude and the high death rate group 482 feet. The annual precipitation average of the first group was 17.7 inches while that of the five states with the highest tuberculosis death rates was 43.5 inches. The low death rate group also had substantially lower relative humidity, greater daily temperature range, and more hours of sunshine. It would seem, therefore, from the analysis of this comprehensive investigation, that, in so far as the United States is concerned, high standards of education combined with life in a dry, sunny climate of high altitude are far more important than large per capita income and low population density in reducing to a minimum the death rate from pulmonary tuberculosis.

A Statistical Study of Climate in Relation to Pulmonary Tuberculosis, Alfred Cowles, 3rd and Edward N. Chapman, M. D. Presented before the American Association for the Advancement of Science at Pittsburgh, Pennsylvania, December 28, 1934.

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## THE SOCIETIES

The **Madison Six County Medical Society** May meeting was held at Newman Grove on the 28. A chicken dinner was served to seventy-five physicians and their ladies preceding the program.

Dr. Clyde Moore, Omaha, discussed "The Problems of the Pre-school Child" in a sane, sensible manner. He stated that there had been a lot of harmful faddism in pediatric teaching during recent years. He implied that "vittels and drink" still had a place in the child's dietary and plead for sanity in regard to the question of removing the child's tonsils. Dr. C. R. Kennedy, Omaha, showed a film on bowel obstruction to elucidate his text. He put great emphasis on the dictum that pain and constipation are the cardinal points to remember in making a diagnosis of bowel obstruction. Dr. H. B. Hunt, Omaha, showed a film and spoke on the "Treatment of Malignancies." He elucidated radium treatment, spoke of the special indication for radium in preference to x-ray and the place for deep x-ray therapy.

The meeting was also remarkable in the number of visitors from neighboring districts, several having come nearly 100 miles to attend the meeting.

The **Cedar, Dakota, Dixon, Thurston, Wayne Counties Medical Society** held the June meeting at the Methodist church basement at Walthill. Nearly sixty physicians and their ladies enjoyed a dinner before the program, which follows:

"Hypertensive Heart Disease," Dr. V. A. Calhoun; "Trachoma," Dr. Chas. S. Davis, U. S. Indian Service; "Abdominal Symptoms of Kidney Disease," Dr. A. D. Munger; "Federal Emergency Relief," Dr. K. S. J. Hohlen, FERA Medical Co-ordinator for Nebraska.

An unique bid for attendance had been sent out by Secretary Kildebeck:

"The weather is fine; the roads are good; business is rotten anyway, so drop your cares; eat a good meal and enjoy a group of inspiring and worthwhile talks. Bring the good wife and family along. Entertainment will be provided for them."

The **Tri-County Medical Society** met at Kimball, June 4, and was entertained by Drs. Miller, Mockett and McShane at the hospital.

Dr. Joseph Button of Cheyenne, Dr. Walter Harvey of Gering, Dr. A. L. Cooper, Scottsbluff, and Dr. G. W. Pugsley, Bayard, presented papers.

The **Republican Valley Medical Association** is still on the map for thirty-five doctors from over south central Nebraska braved flood torn roads, June 6, to attend the semi-annual session of the group at the Hastings State hospital.

Officers of the district are Dr. G. B. Brown of Stratton, president; Dr. George L. Pinney of Hastings, secretary-treasurer; and Dr. Lee W. Rork of Hastings, councilor.

The session opened with a Dutch lunch at the institution at which Dr. J. C. Nielsen, superintendent of the hospital, gave the address of welcome.

Papers were presented by Dr. H. S. Andrews of Minden, Dr. A. H. Fechner of the state hospital and Dr. Charles G. McMahon of Superior.

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## HUMAN INTEREST TALES

Dr. John B. Potts, Omaha, was reported ill in May.

Dr. F. G. Vosicka has located in Wilbur. He came from Clarkson.

Dr. D. I. Doane, for a time at Ravenna, has located at Central City.

Dr. A. M. Pedersen, formerly of Irwin, Iowa, has located at Blair.

Dr. James Less, of "Old Heidelberg," is about to locato in Omaha.

Dr. A. T. Sudman has moved from North Platte to Green River, Wyo.

Dr. and Mrs. Eric Pfeiffer, Wilbur, recently made a trip to the Pacific coast.

Dr. W. H. Wild, Lincoln, was reported the victim of an auto collision recently.

Dr. C. W. Pollard was elected president of the Omaha Child Welfare association.

Dr. J. L. Pennigton, Thedford, was reported ill in a Broken Bow hospital, last month.

Dr. and Mrs. L. W. Bowman, Alliance, visited their daughter at Glendale, Arizona, recently.

Dr. A. B. Fellers, Palisade, suffered a serious leg infection recently but is reported recovering.

An auto stolen from Dr. A. P. Condon, Omaha, recently was found wrecked four blocks away.

Dr. H. N. Boyne, Omaha, recently appeared before the Iowa State Dental Society in Des Moines.

Dr. C. C. Barr, Tilden, underwent an operation at the Mayo clinic for a new growth in the throat, last month.

Dr. A. W. Anderson, Lexington, spent several weeks recently at the Northwestern University in postgraduate work.

Dr. P. A. DeOgny, Milford, was elected president of the National Eclectic Medical Association at Cincinnati in June.

Dr. Irvin H. Thompson, West Point, was badly injured in an auto upset recently and was taken to an Omaha hospital for treatment.

Dr. John B. Lichtenwalner, Omaha, retired physician, was elected president of the Nebraska Veterans Freemason's association recently.

Dr. William Dresser, Viennese heart specialist, is touring the United States lecturing. He recently appeared in Omaha at the University College of Medicine.

Dr. A. J. Griot, Chadron, did postgraduate work on the eye at Harvard University; later taking a swing around New York, Washington and St. Louis on his return.

Dr. W. W. Bauer of the American Medical Association staff gave a lecture before the Omaha Municipal University on Health, Accident Hazards and Community Organization for Child Health.

Dr. S. H. O'Neill, Blue Hill, after attending the One Hundred Twenty-eighth Commencement exercises at the University of Maryland (his Alma Mater) spent some time attending clinics in New York City and Chicago.

After attending the American Medical Association and Women's Auxiliary meetings at Atlantic City, Dr. and Mrs. H. R. Miner, Falls City, spent some time in Baltimore and New York City, where the doctor attended clinics in surgery.

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## OBSTETRICS VERSUS MIDWIFERY: CHAIRMAN'S ADDRESS

Joseph B. De Lee, Chicago (*Journal A. M. A.* Aug. 4, 1934), points out in his address that th dictionaries give the terms obstetrics and mid wifery as synonyms, but he believes that th term midwifery should apply to the practice o caring for women during childbirth by the ol blind, empirical methods, while the term obstet rics should connote the fact that to the wisdo gained by experience has been added all the knowledge supplied by recent scientific investigation. For 1,500 years after Christ, midwives and slave doctors had almost complete sway in the delivery chamber. The midwives pursued every device to retain their control, and the doctors could learn nothing of normal delivery. The fact that they were helpless in obstructed labors, except for their destructive instruments, made their situation worse, because, as Smellie said, the women took great alarm when a man midwife was to be called, since they knew that then either the mother or the baby or both were lost. The invention of the obstetric forceps, about the beginning of the eighteenth century, gave the greatest impetus to the movement to have men attend women in labor, but until very recently the practice of normal obstetrics by physicians has been looked down on by the profession and by the public as well as by the midwives. Some of the old opprobrium still clings to the obstetrician and his work. The medical schools, in many universities, still rate obstetrics as a minor specialty, and even today students leave their campuses with a debased opinion of the science and art of obstetrics. Hospitals do not provide facilities for obstetrics that are the equal of those for surgery. The author has striven during all of his medical life to eradicate this low opinion of obstetrics and to place on equally high pedestals the three primary branches of medicine, obstetrics, medicine and surgery, all equally important, all equally dignified. It is therefore with great pain and some alarm that he noticed a trend in Britain and in spots of the Eastern seaboard, a reactionary trend, toward the state of midwifery. He discusses disturbances of pregnancy, labor, natural delivery and concludes by saying that there are not enough schools, teachers, materials or public and professional support to supply real obstetricians for 2,000,000 births each year. Fortunately the principles of the conduct of labor are not difficult to master. Nature is still on her job and, though perhaps somewhat destructive, she can do it better than unskilled human beings. Let doctors be taught the beauties

## KRUKENBERG TUMOR: REPORT OF CASE WITH RECTAL INVOLVEMENT, PRODUCING STRICTURE

F. G. Runyeon, Reading, Pa. (*Journal A. M. A.*, Oct. 20, 1934), states that in the study of Krukenberg tumor there are two pathologic questions that attract attention: whether the tumor is primary in the ovary or secondary to some gastro-intestinal carcinoma and how can the combination of malignant connective tissue and epithelial areas be explained. He reports a case that invites the attention of the protologist, making it a differential diagnostic problem in strictures of the rectum. This case started apparently with symptoms of stomach dysfunction, at which time the physician suspected carcinoma. The roentgenograms at the time showed no evidence of a malignant growth, although the stomach was undoubtedly involved in the process that was later found at necropsy. The next involvement was one of rectal stricture with ulceration, found when an attempt was made to determine the cause of frequent bowel movements with incontinence. This stricture resembled the lesion found in lymphopathia venereum or in gonorrheal infection. There were no symptoms at this time suggesting ovarian involvement. The rupture of the sigmoid furnished the opportunity to see the pathologic condition of the intestine and ovary, which suggested the probable diagnosis. The case suggests strongly that the primary lesion was in the stomach, with metastases to the small intestine, appendix, sigmoid, rectum and ovaries. The distribution of the lesions would suggest its having been spread by the cancer cells falling from the stomach focus into the organs of the abdomen and becoming implanted there as suggested by Erdheim and Schiller. The abdomen looked as if it might have been subjected to a spray of metastatic cells. It somewhat resembled a case reported by Major in that numerous small, hard, elevated whitish plaques were noted on the wall of the stomach and intestine. Like his, the author's case was noted for the great amount of fibrous tissue found in many of the lesions of the

### ROSTER OF OFFICERS—1935

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|---|---|
| Claude A. Selby, North Platte, President | 1935 |
| George W. Covey, Lincoln, President-elect | 1935 |
| George L. Pinney, Hastings, Vice-President | 1935 |
| William Shepherd, Rulo, Vice-President | 1935 |
| R. B. Adams, Lincoln, Secretary-Treasurer | 1936 |

### COUNCILORS

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|---|---|
| A. P. Overgaard, Omaha, Secretary | 1936 |
| A. L. Cooper, Scottsbluff, Chairman | 1935 |
| W. R. Boyer, Pawnee City | 1936 |
| R. J. Lehnoff, Lincoln | 1936 |
| E. L. Brush, Norfolk | 1936 |
| Homer Davis, Genoa | 1937 |
| H. E. Potter, Fairbury | 1937 |
| D. D. King, York | 1937 |
| W. J. Douglas, Atkinson | 1937 |
| R. D. Bryson, Callaway | 1935 |
| L. W. Rork, Hastings | 1935 |
| O. R. Platt, North Platte | 1935 |

### DELEGATES TO THE A. M. A.

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| R. W. Fouts, Omaha | 1936 |
| B. F. Bailey, Lincoln | 1935 |

### DELEGATES TO COUNCIL ON MEDICAL EDUCATION OF THE A. M. A.

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| J. S. Welch | Lincoln |

### PROGRAM COMMITTEE

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| Morris Nielsen, Blair, Chairman | One Year |
| J. W. Duncan, Omaha | Two Years |
| J. D. McCarthy, Omaha | Three Years |
| Roy H. Whitham, Lincoln | Four Years |
| R. B. Adams, Secretary, Lincoln. | |

### CANCER COMMITTEE

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|---|---|
| James F. Kelley, Omaha, Chairman | 1939 |
| George W. Covey, Lincoln | 1938 |
| W. C. Harvey, Gering | 1937 |
| John Buis, Pender | 1936 |
| J. M. Willis, McCook | 1935 |

### PUBLIC POLICY AND LEGISLATION

| | |
|---|---|
| B. F. Bailey, Chairman | Lincoln |
| R. W. Fouts, Vice-Chairman | Omaha |
| K. S. J. Hohlen | Lincoln |
| J. W. Duncan | Omaha |
| E. W. Rowe | Lincoln |
| Lucien Stark | Norfolk |
| E. G. Johnson | Grand Island |
| R. B. Adams, Ex-Officio | Lincoln |

### JOURNAL AND PUBLICATION

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|---|---|
| F. A. Long, Chairman | Madison |
| A. F. Tyler | Omaha |
| B. F. Bailey | Lincoln |
| R. B. Adams, Ex-Officio | Lincoln |

### CAMPAIGN COMMITTEE

| | |
|---|---|
| K. S. J. Hohlen, Chairman | Lincoln |

### COUNCIL ON MEDICAL EDUCATION

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|---|---|
| J. Stanley Welch, Chairman | Lincoln |
| J. R. Nilsson | Omaha |
| Rudolph Decker | Byron |

### MEDICO-LEGAL DEFENSE

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## THE TREATMENT OF CHRONIC ARTHRITIS*

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It is my purpose to discuss the treatment of chronic arthritis, primarily, from the viewpoint of *fundamental principles* rather than of special measures.

In the first place, the fact that the various clinical types of chronic arthritis are manifestations of systemic as well as articular changes no longer requires emphasis. That the arthritic patient is no more "a mere assortment of bones and joints" than the tuberculous patient is a "pair of lungs on a pair of legs", is now generally appreciated.

### PATHOLOGY

Unfortunately, the etiology of arthritis is considerably more complicated than is that of tuberculosis; but, because we cannot formulate a simple, accurate and scientific clinical classification, (in the light of our present knowledge) is no excuse for continuing to employ such relatively meaningless terms as rheumatoid arthritis, arthritis deformans, etc. If the precise etiology cannot be agreed upon, at least the primary tissue changes are not open to serious argument and it is believed that a better concept of therapy would be furthered by the use of a classification based upon terms that are descriptive of the *initial* tissue reactions.

In the type of chronic arthritis commonly called rheumatoid or *atrophic,* the disease affects primarily the *synovial membrane and marrow.* These tissues react initially by proliferation and changes that relate to atrophy, cartilage destruction, etc., are entirely secondary.

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*Guest speaker's address given before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

In the form of chronic arthritis usually referred to as *osteo* or *hypertrophic* arthritis, the primary change is degeneration of the joint *cartilage*. As this dissolution progresses there is usually compensatory proliferation of the marginal fibro-cartilage. The fact that there are no blood vessels and no nerves in cartilage, serves to clarify the nature of both the pathology and the symptomatology of this type of the disease.

Leaving out of consideration the relatively rare cases of "mixed" arthritis, the problems of treatment in the two main clinical groups are concerned on the one hand with primary *proliferative* changes in synovial membrane and marrow, and on the other, with initial *degenerative* reactions in cartilage. However, in advanced cases of long duration both the nature of the tissue changes and the extent of the joint involvement will present other variants.

### CLINICAL GROUPS

Regardless of differences of opinion concerning the comparative etiological importance of infection and trauma, it may be said that two distinct clinical groups of patients come under our observation.

In the first, the age of onset is commonly above 45, obesity, hypertension and functional disturbances of the gastro-intestinal tract are frequently encountered, while normal sedimentation rates and temperatures and negative agglutination reactions predominate. Furthermore, there is rarely any history of a diffuse upper respiratory or other infection.

Patients with this type of the disease rarely complain of cold hands or feet. The joint involvement is often asymmetrical in distribution and rarely generalized. The larger joints (particularly the knees) are affected early. The limitation of joint movements is a very gradual development that is unaccompanied by migratory pains and not characterized by muscle atrophy. Heberden's nodes are frequent. Ankylosis is exceedingly rare and never complete.

In the second group, the age of onset is considerably earlier, undernourishment, occasional slight elevations of temperature and anemia are frequent, while sedimentation rates above 30 mm. (Westergren) in one hour and positive agglutination reactions in titres of 1:160 or higher are found in the majority of active cases. Such patients, moreover, often present evidences of visceroptosis and the history of a diffuse upper respiratory or other infection of streptococcal origin is the rule rather than the exception.

There is regularly a more or less early and bilaterally symmetrical involvement of the smaller joints of the hands and feet; there is early limitation of joint movements from pain, stiffness and swelling; the joint enlargement is usually fusiform; muscle atrophy is frequent and ultimate disablement from ankylosis is the rule.

As far as mere differential diagnosis is concerned the average general practitioner should be able to "hit the mark" at least nine times out of ten without the aid of a single laboratory test or an x-ray picture.

### GENERAL PRINCIPLES OF TREATMENT

Chronic arthritis is not a disease that develops over night and it takes time for these patients to get well. Few of them realize how much their own character and intelligence figure in their chances of recovery, and yet, no physician of experience ever neglects these factors in making a prognosis. There are, indeed, few instances in the field of medicine in which intelligent cooperation, perseverance, will-power and attitude of mind count for so much. This work of treating chronic arthritis is no one-sided affair and the first principle of treatment is (or should be) that the physician present a frank and complete picture of the long road to be travelled, and unless the patient is prepared to "carry on" to the best of his ability for the full distance, it is far better not to start at all.

In view of the widely differing pathological and clinical pictures presented by the two groups of patients with chronic arthritis, our second principle of treatment is that patients with the degenerative type require a materially different composite program than do those with the proliferative variety.

As a broad generalization, it may be stated that patients with chronic degenerative arthritis respond well to procedures that minimize the traumatic effects of overweight, posture, occupation, etc. Rest of the weight-bearing joints and measures to combat constipation and hypertension are also beneficial. Heat and heliotherapy usually contribute greatly to symptomatic relief; while drugs play a distinctly minor rôle and vaccines, sera and other antigenic biologicals are of negligible importance.

Our third principle of treatment applies to patients with either chronic degenerative or chronic proliferative arthritis, but particularly to the latter. These individuals not only present an essentially different therapeutic problem, but also require the employment of programs that embrace a combination of measures. It should, therefore, be emphasized that only rarely can a single procedure (not excepting focal removals), be regarded as constituting adequate treatment.

We hear much about "single-track" minds and it is doubtful if medicine presents a more striking example of trying to fit patients into one-phase schemes of therapy than is to be found in the general care of arthritic patients.

The importance of removing the cause of either a degenerative or a proliferative arthritis is not to be regarded lightly; but are there any in this room who have *not* seen patients with proliferative arthritis whose focal removals had run the gamut of all demonstrable infections and yet whose joint manifestations were still progressive?

In the same way that some regard the elimination of infective foci as the Alpha and Omega of treatment, there are those who pin their faith to other single phase methods, such as diet, drugs, vaccines, electrical modalities, medical hydrology, climate, etc. However, the point that I desire to stress is not that these and other forms of treatment are devoid of efficacy, but rather that the maximum benefits for the majority of arthritics are dependent upon their combination in composite programs.

## PREVENTION OF DEFORMITIES

A fourth important principle of treatment relates to the employment of measures for the prevention of deformities, and, particularly, in the case of patients with chronic proliferative arthritis. Many of the therapeutic problems with which we are confronted are directly attributable to neglect of this essential. The present incidence of flexion contractures and other deformities is, to a limited extent, the result of delays upon the part of patients in seeking early diagnoses and treatment, but, primarily, it is due to our failure to appreciate the fact that practically all of these deformities are preventable and that their prevention is infinitely more simple than their correction.

Leaving for the moment, the concept that patients with the proliferative and degenerative types of chronic arthritis require materially different treatment methods, that composite programs of therapy rather than single procedures are ordinarily indicated and that measures for the prevention of deformities should be more generally employed, let us consider a few other phases of treatment that have been found to be of fundamental value.

## IMPORTANCE OF SYSTEMIC MEASURES

Reference has already been made to the fact that the treatment of chronic arthritis presents problems that are systemic in character and it is our practice to concentrate our efforts, in the beginning of treatment, upon these considerations. This should not be construed to imply that measures to prevent deformities, improve joint circulation and restore joint function may not be carried out simultaneously in many instances, but it does mean that a very large percentage of patients will recover much more promptly if their constitutional condition is first given attention.

It is clear that arthritic patients who present evidences of undernourishment, anemia, gastrointestinal disturbances, etc. will respond less rapidly to measures to restore joint function than will those who do not.

Because patients go to arthritis clinics for the treatment of joint disabilities, the urge to promptly initiate measures of a local character is great, but much time may be lost by giving precedence to such procedures.

At this point it should be stated that in Tucson we rarely see mild, early cases of chronic arthritis and that between eighty and eighty-five per cent of our patients have well established chronic joint changes. It, therefore, follows that emphasis may be given to some phases of treatment that would be of less importance were our patients seen at an earlier stage.

Among measures that have been found useful in improving the general condition of our patients may be mentioned:

Rest
Diet
Heliotherapy
Psychotherapy
Intestinal Hygiene
Blood Transfusions
Drugs, Heavy Metals, Colloidal Substances
 and Vaccines

## REST

The majority of patients have heard altogether too much about the necessity of exercise. There seems to be a widespread and ingrained impression that unless they "keep going" and constantly use their joints, ankylosis will be inevitable. Not only does the lack of adequate rest retard improvement of a constitutional character, but also the addition of mechanical irritation to existing joint inflammation often leads to serious consequences. Most patients are inclined to the overuse of all of their arthritic joints, but those who carry walking to excess are much more numerous than patients who over-exercise their arms.

It may be said that stiffness of joints after resting usually means overuse before resting, and the one safe rule regarding exercise for arthritic joints with active involvement is that their movements be restricted to the range that does not produce pain. In fact, it is generally beneficial for all such joints to be carried through their painless range of motion several times daily.

### DIET

It would be difficult, indeed, to find a subject about which there are more fads and fancies than are associated with foods and their rôle in the treatment of patients with chronic arthritis. Besides an eighteen-day fast, it has been suggested that obese patients should eat and drink everything that agrees with them, but as little as possible, while thin patients should eat and drink everything that they enjoy and as much as they desire.

Considerable emphasis has been placed by some authorities upon the importance of restricting sugars and starches, but extensive clinical studies indicate that such restrictions are sometimes advantageous merely for the reason that most well people on the usual American dietary consume excessive amounts.

The undernourished patient may or may not require additional calories and the problem with which the physician is confronted is to build up resistance through improving nutrition.

Patients who are overweight present problems in mechanics as well as in dietetics.

A diet of approximately thirty calories per kilogram of body weight provides a useful basis for calculating the requirements of the average patient and in prescribing dietaries, a balanced general ration with adequate quantities of vitamins should be adhered to.

### HELIOTHERAPY

The benefits of a warm, dry and sunny climate, with minimal barometric fluctuations are beyond all question. However, the great value of such a climate is attributable to the fact that it facilitates direct heliotherapy. On the other hand, sun bathing is not a "cure-all," a few patients derive little or no benefit from it, and it should always be employed under experienced supervision and in combination with other measures over a period of several months.

### PSYCHOTHERAPY

The amount of moral encouragement required by patients with chronic arthritis is enormous and psychotherapy occupies a position of major importance in most composite programs of treatment.

### INTESTINAL HYGIENE

The rôle of what may be called intestinal hygiene, embracing colonic irrigations, dietary and other measures to promote adequate bowel elimination is still subject to rather wide differences of opinion. In our experience adequate bowel elimination cannot be ignored, although we have not found it to be of greater moment in arthritis than in many other diseases. Moreover, moderate degrees of visceroptosis do not ordinarily present mechanical problems of great clinical significance.

While not pertinent to our discussion of treatment, it, nevertheless, may be of interest to note here that secondary intestinal infections are very rarely encountered by us and we believe that their clinical importance is often exaggerated.

Last year, as part of a research program that was carried out in our laboratories for General Mills, Inc., we did complete chemical and bacteriological examinations of two hundred stools. The specimens were obtained from 150 patients with both clinical types of arthritis and from 50 normal individuals. In every instance hemolytic streptococci or organisms, similar in character to the diplococcus of Bargen and the enterococcus, were found either by the Burbank method or by direct plating. It, therefore, follows that a diagnosis of secondary foci in the intestines must be based upon other factors than the mere recovery of streptococci from the feces.

### BLOOD TRANSFUSIONS

After having given nearly one thousand blood transfusions by the citrate method we feel that we are in a position to certify to their great clinical value in selected instances. The established anemia so commonly associated with the later stages of chronic proliferative arthritis appears to be related, in part, to the proliferation of fibrous tissue and endosteum of marrow as well as to the functional influences of toxemia.

The clinical improvement that follows transfusions given at suitable intervals is often striking and is attributable to support of the blood forming function and the consequent diminution of bone marrow depletion.

### DRUGS, HEAVY METALS, COLLOIDAL SUBSTANCES AND VACCINES

Despite the fact that the specific action of any drug upon the course of chronic arthritis has yet to be conclusively demonstrated, there are, nevertheless, a limited number of preparations that are exceedingly useful. Among them may be mentioned arsenic, strychnine, iron and the salicyl derivatives.

Among the heavy metals, sodium gold thiopropanol sulphonate would appear to merit special consideration, but as in the case of colloidal substances, we wish to continue our studies for at least another year before submitting a definite opinion regarding results. However, it may be stated at this time that such benefits as have been noted appear to be due very largely to influences of a non-specific character upon metabolism.

With regard to vaccines (and the term is employed here to include various types of antigenic biologicals), we have abundant clinical and laboratory evidence as to their value in a very large percentage of patients who suffer from the proliferative (infectious) type of the disease.

Through the employment of agglutination tests and sedimentation reactions the choice of patients who will respond to this form of therapy can be made with great accuracy. While the agglutination tests are affected by the age of the patient and become less reliable for patients in the upper age groups, the majority of patients are within the age limits that lend great dependability to agglutination reactions.

In a general way, it may be stated that most patients with sedimentation rates of 30 mm. or more (Westergren) in one hour and low agglutination titres. will be benefited by vaccine therapy.

If a probable focus of infection can be established, an autogenous vaccine, administered subcutaneously, may be given preference, whereas for patients who are seen in the later stages of the disease, stock vaccines combined with cultural filtrates of the Schwartzman type are administered intravenously with great success.

Whether large or small doses should be given is dependent to a very great extent upon the strains of the organisms from which the vaccines are made and upon the relative importance of immunization and desensitization.

The therapeutic possibilities of toxoids from streptococci are being studied in our laboratory at the present time.

Therapeutic factors which are not devoid of systemic influence, but are employed more particularly for the improvement of joint circulation and the restoration of joint function are various kinds of physical therapy, hydrotherapy and corrective apparatus such as splints, braces, casts, traction equipment, etc. There is, furthermore, a very considerable percentage of patients for whom orthopedic surgery is necessary.

Each of these methods provides sufficient material for separate discussion, but time will only permit of the briefest mention of some of the outstanding considerations.

### PHYSICAL THERAPY

Many of the benefits derived from physical agents are attributable to the value of heat in improving circulation, relieving pain and muscle spasm and promoting healing. The types of equipment for the production of dry, moist and radiant heat, which may be applied for either local or general reactions, are numerous and varied. Massage and therapeutic exercise should also be included in the list of physical agents of recognized usefulness.

Water baths are primarily beneficial because of the heat factor and. in our experience, they have been particularly effective in cases of fibrositis.

For the treatment of arthritic hands and feet our preference among physical agents is the paraffin bath.

The fact that deformities of the finger joints often produce a degree of disability which, in economic importance, equals that of all of the other joints combined, cannot be stressed too strongly.

Paraffin has been extensively employed abroad for many years, but has never achieved great popularity in this country despite the excellent results that have followed its use.

Introduced into the practice of medicine by Colonel Littlewood of England, during the World War, as a method possessing particular advantages for the treatment of selected cases of chronic arthritis, it is possibly our most valuable means of treating arthritic feet, ankles, hands and wrists, because it enables higher temperatures to be applied than is the case with solutions, oils, packs, foments, radiant heat, etc.

Evidence of the superiority of paraffin is of two kinds. First, the more prompt symptomatic relief, which lasts very much longer than when other means of applying heat are employed; and, second, the more rapid return to normal of the affected structures which may be demonstrated by x-rays as well as by measurements of the increased range of joint movement.

In our foot and leg baths at least 100 pounds of paraffin are used and in our hand and wrist baths 75 pounds are considered necessary.

Treatments are begun with the paraffin heated to a temperature of 120° F. which is increased to an average of between 140° F. and 150° F.

Inductothermy, radiothermy or the so-called "short-wave" diathermy are of special value in efforts to improve circulation either generally or locally.

Artificial fever is beneficial in only a very small percentage of patients.

Massage of arthritic joints is rarely indicated, but this form of physical therapy is of outstanding usefulness in stimulating general physiologic function and improving muscle tone and circulation.

Under therapeutic exercise may be mentioned active exercise, passive movements, corrective posture exercises, resistive exercises and breathing exercises.

To prescribe the proper type and amount of therapeutic exercise is one of the important responsibilities in the treatment of arthritic patients.

### ORTHOPEDIC FACTORS

In addition to surgical procedures for the relief of pain and the improvement of joint function there is much to be done for patients with chronic arthritis by way of orthopedic treatment.

The correction of faulty posture and body mechanics, the protection of inflamed joints, the prevention of deformities and the promotion of normal physiologic function are among the outstanding problems presented. Various forms of apparatus may be employed, but casts, light splints and traction will markedly shorten the recovery period for the majority of patients.

Ambulatory patients present a problem that in some respects is more difficult than in the case of bed patients. The strain on all the joints of the lower extremities from the hips to the metatarsal arches is enormously increased by weight-bearing and in the chronic infectious type the ligaments are prone to yield to the pressure upon them. Evidence of the softening of ligaments can almost invariably be detected by the flattening of the arches of the feet, which is rarely absent. In obese patients with the degenerative type of the disease a similar condition of the arches is frequently encountered. Proper shoes, manipulations, therapeutic exercises, and arch supports will ordinarily effect a satisfactory recovery within a relatively short time.

Deformities that limit spinal movements, particularly those of the thoracic spine, and hold it in unnatural positions are far more serious for the general health of the patient than are deformities occurring in the extremities. Recumbency is indicated to afford rest, allay pain and muscle spasm and to prevent deformity. Later, postural and breathing exercises, with some type of support may be advantageously employed.

Wrist deformities and "flat hands" may be corrected by cock-up splints with properly molded palmar arches.

Finger deformities respond well to the application of forward extensions to cock-up splints (which may be used for holding the fingers either flexed or extended) or to specially designed banjo splints. Therapeutic exercises and paraffin baths are also ordinarily prescribed. Neglect of the fingers may result in disabilities, which equal in economic importance the combined crippling of all of the other joints.

Knee joints stand second in frequency of the joints attacked by arthritis, the finger joints holding first place. The arthritic process, if not checked, goes on to marked injury of the joint surfaces with resistant contractures in the hamstring muscles, fascia and joint capsule.

Flexion deformities of the knees can be prevented by keeping the leg at night in a plaster cast, cut into an anterior and posterior half. Plaster casts will also cause effusions to rapidly disappear. When contractures are already established, they may often be corrected by intermittent traction.

### CONCLUSIONS

Despite this necessarily cursory review of the problems of treatment it is well established that our existing knowledge of chronic arthritis—incomplete though it may be—is entirely adequate to eliminate most of the toll of suffering and disability that is now being exacted.

The conquest of chronic arthritis, however, cannot be achieved by the specialist, who sees patients in the late stages, but by the general practitioner, who is, and will long continue to be, the first to be consulted, and upon whom rests the responsibility for early diagnosis.

(Note: Acknowledgement is made to my clinical and research associate, Dr. Robert Alan Hicks, for his collaboration in the preparation of this paper.)

# ATYPICAL LEUKEMIC STATES AND LEUKEMOID REACTIONS*

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It is customary to consider acute leukemia as a disease entity, having more or less constant characteristics. Clinically, it is usually accompanied by necrosis of mucous surfaces, sepsis and purpuric manifestations. The blood picture also has constant findings: the predominant cells are decidedly of the immature variety. Disregarding the stand one takes about the classification of the cell-type in question(8), be it a myeloblast, lymphoblast, promonocyte or just "stem-cell," we all agree, at least, that it is a very immature cell. The presence, then, of large numbers of immature cells in the peripheral circulation, together with the usual clinical findings determine the diagnosis.

The object of this presentation is to bring out the unusual cases, in which the blood picture and the clinical manifestations do not agree. Such occurrences are often very puzzling. The following cases will serve to illustrate the points raised:

Case 1. Mr. D. A., white, aged 20, was admitted to the medical service of the University hospital on October 22, 1932, complaining of weakness, anorexia and swelling in the right side of the neck. His past history was negative. He had been in good health up to the last two months. At that time he noticed a swelling at the right angle of the jaw; this grew progressively larger, though painless. He consulted a physician, and the latter diagnosed the condtion as "mumps." After treating the patient for two weeks the physician changed the diagnosis to that of "suppurative adenitis." The swelling was lanced about ten days prior to the patient's entry to the hospital; some bloody pus (?) was obtained. On entrance to the hospital, a hard circumscribed fixed mass, 6 cm. across, slightly discharging from an old central incision, was found over the right angle of the jaw. The right tonsil and pharyngeal wall were pushed in medially, beyond the midline of the throat. There was a generalized glandular enlargement and a questionably palpable spleen. The temperature was but slightly elevated and the pulse moderately rapid. The blood count was as follows: Hb. 70%, R. B. C. 3,550,000, W. B. C. 26,800. The blood smear contained 18% lymphocytes, 7% monocytes, and 75% granulocytes, of which 5% were myelocytes, 30% staff, 30% segmented and 1% eosinophils. The blood picture was that of a severe infection. Surgical consultation was sought. Considering the blood findings as well as the mode of onset, the consultant expressed the opinion that the swelling was inflammatory in nature, originating in the tonsil; he deferred, however, the final diagnosis until a biopsy was done. On October 26 a biopsy was performed; the diagnosis was "Sarcoma, type undetermined." X-radiation therapy was instituted. This was kept up only for a short time because the patient was complaining of extreme weakness. Furthermore, it was felt that the condition was hopeless. The temperature was now ranging from 99 to 101° F.

A leucocyte count done on November 4 was startling. The total count was 34,400; of these 79% were lymphoblasts, 10% small lymphocytes, 6% monocytes and only 8% granulocytes. The predominant cells were decidedly immature. They were rather large and made up mainly of nuclear material; the cytoplasm was relatively insignificant. The nuclear material consisted of a fine network of chromatin in which were embedded numerous faint and unevenly staining granules. Large vacuoles were present in most of the cells. Occasional cells possessed double nuclei in the state of mitosis.

With the present blood picture, the diagnosis of acute lymphoblastic leukemia was very fitting. On November 5 the total leucocyte count was 56,000; of these 83% were lymphoblasts, 7% small lymphocytes, 5% monocytes, and 5% granulocytes. The patient expired on November 6. At no time of the period of hospitalization were there any purpuric manifestations in evidence. The antemortem diagnosis was "Acute Lymphatic Leukemia."

Abstract of the autopsy findings (by Dr. P. Tollman):

Gross: Diffuse enlargement of the lymph nodes, particularly through the mesenteric and periaortic groups. Tumor infiltrations in the kidney, spleen and bone-marrow. Ulcerated area on the lesser curvature of the stomach, near the cardia.

Microscopic: Tumor-cell infiltrations in the gastric mucosa, liver, spleen, intestinal mucosa, kidneys and bone-marrow. The lymphoid organs, i. e., the thymus, lymph-nodes and tonsils, show a destruction of the normal architecture by tumor cells.

Case 2. Mr. G. S., white, aged 27, was admitted to the x-ray service of the University hosiptal on November 15, 1932, because of continuous bleeding from the mouth of two days duration. The following history was obtained:

Patient consulted a physician about 5-6 weeks previous, complaining of frequency of urination. The urinary condition was attributed by the physician to a gonorrheal urethritis with bladder involvement. In the course of the examination, the physician discovered a large lump in the left side of the patient's neck. A few days later the patient developed dyspnea and cyanosis. A radiogram disclosed a mass in the mediastinum about 10 cm. wide, extending up to the sternal notch. A biopsy was taken from the neck tumor; this was diagnosed "lympho-sarcoma." Under x-ray treatment the mediastinal mass melted away and the patient's condition improved. Two days before admission to the hospital the patient commenced to bleed from the mouth. The bleeding, though not profuse, had been constant.

Physical findings of importance were (1) many tumor-nodules in the scalp and the post-auricular regions, (2) bleeding from the gums. Throat not especially sore and not ulcerated. (3) Enlarged cervical lymph-nodes, (4) enlargement of the spleen and liver, grade III, and (5) enlarged inguinal glands. The scalp nodules were very firm and infiltrating; most of the nodules were about the size of a cherry. The past history was irrelevant.

A few days after admission the patient commenced to bleed from the nose. The hemorrhages were hard to control at times. At this time petechial hemorrhages made their appearance all over the skin, and hematuria set in. On November 24 the patient began to complain of soreness of his throat; this was found to be due to ulcerations of the pharynx. From here on he ran a rapidly down-grade course, sinking into a state of coma, and expired on November 26, 1932. His temperature and pulse rate were of the septic type. The blood clotting time was 5 min., the clot was non-retractile. The bleeding time varied from 20 minutes to 4 hours. The blood counts are given in table 1. The most noteworthy finding about the blood counts was the fact that the lymphocytes were all of the normal variety.

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*Read before the Thirteenth Annual Convention of the American Society of Clinical Pathologists, Cleveland, Ohio, June 8-11, 1934.

Abstract of the autopsy findings (by Dr. P. Tollman):

Gross: Diffuse hyperplasia of the lymph-nodes. Enlargement of the thymus. Bilateral broncho-pneumonia. Hemorrhages in the lung tissue. Subserous hemorrhages in the abdomen. Hemorrhages in the bone-marrow.

Microscopic: Lymphoid-cell infiltration (leukemic in type) in the lungs, heart, kidneys, liver, prostate and bone-marrow. Malignant hyperplasia of the lymph-nodes. The lymph glands consisted of masses of lymphoid cells without any particular arrangement. The capsule, as well as the surrounding tissue were often infitlrated by these cells.

Case 3. O. W., white boy, aged 9, was admitted to the pediatric services of the University hospital on Jan. 8, 1934, because of the following complaints: shortness of breath, pain in the right chest, hacking cough, glandular swelling, loss of weight and slight fever. History of the present illness dated back about two months, when his mother noticed firm nodular swellings on both sides of his neck; these were not painful or tender. Loss of appetite and general weakness were noted shortly after. In the last two weeks the patient has been complaining of pain in the right chest and shortness of breath; a hacking cough made its appearance at the same time. No hemorrhagic tendencies were noted. The family and the past history did not disclose anything of importance.

Physical findings:

1. Generalized glandular swelling. The glands, though not particularly large, were firm, discrete and movable. The supraclavicular glands were more involved on the left side. The rest of the glandular distribution was more or less symmetrical.

2. An area of dullness was found to the right of the sternum, about the fifth rib. The chest appeared to bulge slightly in this area. This mass was not tender to pressure, but the patient would compain of pain in this localtiy when coughing.

3. The spleen was down almost to the level of the umbilicus, though not very firm.

4. A few small superficial nodules were present in the anterior abdominal wall; these were freely movable beneath the skin.

The temperature on the morning after admission was 99° F., rectally, pulse 100 and respiration 20 per minute.

A radiogram of the chest revealed a diffuse rounded mass filling the superior mediastinum; some fluid was also disclosed in the right pleural sac. A biopsy was taken from one of the cervical glands. The histopathologic diagnosis was "lymphosarcoma." A series of x-radiation treatments were given between January 22-29. The patient's condition improved: the cough and the pain in the chest as well as the difficulty in breathing have left him. He was dismissed from the hospital, as improved, on January 30.

The blood findings during the hospitalization period are given in table 2. The temperature during the period of observation was but slightly elevated and not of the swinging type. The skin and the oral mucosa were free from any purpuric eruptions. The patient did not complain of a sore throat at any time, nor was there any evidence of ulcerations in the mouth.

Shortly after he left the hospital blood appeared in his urine, at times in very high concentrations. This resulted in a very profound anemia. The leucocyte count, taken on February 16, was 100,000; of these 5% were neutrophils, while the rest consisted of large lymphoid cells, the majority of which were relatively normal lymphocytes, while 15-20% showed a high degree of immaturity, such as reticulation of the nuclei, large vacuoles in the nuclei, occasional mitosis, etc. He expired at home on March 3, 1934. An autopsy was not obtained.

Case 4. Mrs. A. W., white, age 71, entered the Mercy hospital of Council Bluffs, Iowa, on April 20, 1933, complaining of severe cramp-like pain in the abdomen, vomiting, extreme distention and obstipation.

Her previous history was essentially negative except for a similar attack in September, 1932. She was treated then at this hospital. With pituitrin and enemas the symptoms of obstruction were relieved in 24 hours, and she was free from symptoms up to the present attack. Her blood count in September, 1932, gave a normal hemoglobin and red count, and a leucocyte count of 16,400 with 79% neutrophils.

On this admission, the usual therapeutic measures were applied to relieve the symptoms of obstruction; no relief, however, could be obtanied, and the patient was operated on April 2.

At operation, a hard mass was found at the recto-sigmoid junction; this was infiltrating the wall of the bowel, obstructing the lumen. The regional lymph-glands were enlarged. In view of the patient's age and poor physical condition, nothing of a radical nature was attempted. A colostomy was hurriedly performed, and the patient returned to her room. The surgeon's gross diagnosis was "Carcinoma."

The patient's physical condition, subsequent to the operation was growing steadily worse. She expired on May 12, 1933. Permission for an autopsy was not obtained. Table 3 gives the different blood counts done on this patient. These were of unusual interest, as will be brought out later.

## COMMENT ON THE ABOVE CASES

Case 1. This case was diagnosed by the referring physician as "Suppurative Lymph-adenitis." The blood count shortly after admission to the hospital, also was in favor of this diagnosis. The biopsy, however, changed the diagnosis to that of "Sarcoma." From here on the behavior of the case was not expressive of any particular clinical entity. The down-grade course could very readily be explained on the basis of malignancy, and as such the case was pigeon-holed, until the blood was checked on November 4. At this time the blood disclosed an entirely new and unexpected picture. The diagnosis of acute leukemia from the blood findings in the terminal stage was not only suggestive but most logical. Yet the patient, even at this stage, was lacking in the main clinical manifestations which would point to the diagnosis of acute leukemia. Purpuric lesions were totally absent; ulcerations of the mucous surfaces were not obvious, and even the temperature was lacking in the usual septic curves, seen in acute leukemias.

Sternberg(11) aptly coined the term "Leucosarcomatosis" for cases similar to this. Excepting the difference in the total number of the leucocytes, this case is very similar to Case 1 of Sternberg's series.

In the discussion of his cases, Sternberg generally refers to the type-cells as leucosarcoma-cells (leukosarkomzellen). The cells in this case, however, were more immature than the type-cells of Sternberg's. The cells in our case had all the attributes of lymphoblasts. Quite likely these cells were fed to the circulation by the breaking-down tumor. The fact that this patient had a relatively normal blood at the time when the biopsy revealed a sarcoma speaks against the assumption that we are dealing here with a leukemia primarily.

Quite a similar situation is recorded by Buschke and Hirschfield(1). Their patient, a 22 year old girl, who was suffering from tuberculosis for some time, developed skin tumors shortly after the last injection of tuberculin was given. Her blood counts were normal for a long time. A skin puncture revealed special "lymphoid" cells in the tumors. About three months after the skin-puncture the patient's blood commenced to show radical changes: the total leucocyte count went up to 33,000; most all the cells consisting of special lymphoid forms. which the authors considered analogous to those obtained from the skin-tumor by puncture. Buschke and Hirschfield advance the argument against leukemia in their case, in as much as "these cells (lymphoidocytes) were already demonstrated in the tumors of the skin at the time when the blood was free from leukemic elements. Their massive presence in the skin tumors had to be responsible for their appearance in the blood at the time when they were discovered." Obviously the very same argument would be fitting in this case, and the logical diagnosis should be "Sarcoma, accompanied by a terminal blood-picture of acute leukemia."

Case 2. Unlike Case 1, this case had all the clinical characteristics of acute leukemia: a septic temperature-curve, necrosis and ulceration of the oral mucosa, and spontaneous hemorrhages. The blood-picture, however, was persistently against this diagnosis. True, the total leucocyte count was 126,000 on admission, but the cells were all mature lymphocytes. Chronic lymphatic leukemia could give such a blood picture, but the history and the course of this case were against that diagnosis. A case of chronic lymphatic leukemia will terminally at times, show all the clinical manifestations of acute leukemia; in such instances, however, the blood picture changes simultaneously with the clinical one, whereas, in our case practically all the type-cells were mature lymphocytes in the face of a fulminating leukemia-like affection. The skin infiltrations, especially the scalp-nodules attracted our attention as a rather prominent feature in this case. These, by the way, did not contain any pigment.

In this regard the case is closely related to those reported by Poynton and Moncrief(7) under the title "Subcutaneous Nodules in the Scalp in Fatal Cases of Glandular Enlargement With Mononucleosis."

TABLE 1. BLOOD COUNTS ON G. S., CASE 2.

| Date | Nov. 15 | Nov. 21 | Nov. 22 | Nov. 24 | Nov. 25 |
|---|---|---|---|---|---|
| W. B. C. | 126,000 | 6,800 | 18,000 | 68,000 | 50,000 |
| Hgb. | 93 | 43 | .... | .... | .... |
| R. B. C.* | 4,600 | 2,480 | .... | .... | .... |
| % N. Segm. | 3 | 9 | 6 | 2 | .... |
| % N. Staff. | .... | 9 | 5 | 1 | 1 |
| % N. Juv. | .... | .... | 1 | .... | 1 |
| % Myel. | .... | .... | .... | .... | 3 |
| % Eosinophils | 1 | .... | .... | .... | 2 |
| % Mono. | 3 | 3 | 1 | .... | .... |
| % Lymphocytes | 93 | 78 | 87 | 97 | 89 |
| % Lymphoblasts | .... | 1 | .... | .... | 4 |

*Red Blood Count designated in thousands.

Patrassi(5) also reports a unique case of leukemic skin tumors occuring in a patient with chronic myeloid leukemia which terminated in acute myeloid leukemia.

A fitting diagnosis on this case would be "Lympho-sarcoma with clinical manifestations of acute leukemia and a blood picture of chronic lymphatic leukemia."

Case 3. This case approaches acute leukemia closer than any of the others in this series Yet in many respects this was not an acute leukemia. The complaints at first were chiefly of respiratory embarrassment. easily traceable to the mediastinal tumor. The temperature was but slightly elevated and lacking in septic qualities. The red count was very little affected until the institution of the x-ray therapy for the mediastinal tumor. Purpuric manifestations were totally absent. The hematuria which appeared later undoubtedly was due to metastatic renal infiltrations. Ulcerations of the mucous surfaces were lacking. This case may be placed as an intermediary one between the first and second. Hematologically this case showed a relatively milder reaction than Case 1 and more severe than Case 2; while clinically it was less acute than case 2 and more leukemic in nature than Case 1. The final diagnosis in this case should be "Lympho-Sarcoma with a subleukemic blood-picture."

Case 4. Unlike the other cases, this was not a case associated with a lymphoid tissue tumor, but one of a carcinoma of the colon, originating in the mucosa. One can hardly explain the appearance of the abnormal lymphocytes in the perpheral circulation on the basis of breaking-down lymphoid tissue. Furthermore, the cells were quite unusual, the majority of them belonging to "irritation-forms." They were not blastic cells. The most constant characteristic of these cells was the unevenness in the density of the chromatin distribution in the nuclei. Some nuclei appeared as if they were furrowed: a light thin streak running between darker, heavier nuclear accumulations. Occasional condensation particles had the appearance of nucleolar bodies.

TABLE 2. BLOOD COUNTS ON O. W., CASE 3.

| Date | 1-17-34 | 1-18-34 | 1-19-34 | 1-21-34 | 1-22-34 | 1-23-34 | 1-24-34 | 1-26-34 | 1-27-34 | 1-29-34 |
|---|---|---|---|---|---|---|---|---|---|---|
| % HGB. | 65% | ....... | ....... | ....... | ....... | ....... | 60% | ....... | 60% | ....... |
| R. B. C.* | 4,100 | ....... | ....... | ....... | ....... | ....... | 3,200 | ....... | 3,350 | ....... |
| W. B. C. | 25,000 | 27,000 | 28,000 | 45,000 | 45,000 | 25,000 | 15,000 | 4,800 | 4,500 | 8,400 |
| % N. Segm. | 8 | 3 | 4 | 3 | 2 | 3 | 11 | 8 | 4 | 5 |
| % N. Staff | 8 | 15 | 11 | 9 | 7 | 9 | 11 | 16 | 15 | 13 |
| % N. Metamyel. | 10 | 10 | 8 | 7 | 4 | 3 | 8 | 6 | 5 | 7 |
| % Juveniles | 2 | 3 | 2 | 5 | 2 | 4 | 3 | 5 | 8 | 8 |
| Eosinophils | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | .... |
| Basophils | 1 | 1 | .... | 2 | 1 | .... | .... | 1 | 1 | 1 |
| Monocytes | 3 | 2 | 2 | 5 | 3 | 2 | 1 | 3 | 5 | 6 |
| Lymphocytes | 33 | 35 | 36 | 39 | 39 | 40 | 48 | 42 | 39 | 36 |
| Lymphoblasts | 33 | 30 | 36 | 30 | 41 | 28 | 17 | 18 | 22 | 24 |
| Number of Nucleated reds per 300 W. cells | 4 | 7 | 13 | 6 | 5 | 7 | 6 | .... | .... | 9 |

*Red Blood Count designated in thousands.

TABLE 3. BLOOD COUNTS ON MRS. A. W., CASE 3.

| Date | 4-20-33 | 4-21-33 | 4-24-33 | 4-26-33 | 4-28-33 | 5-1-33 | 5-4-33 | 5-9-33 | 5-11-33 | 5-12-33 |
|---|---|---|---|---|---|---|---|---|---|---|
| % HGB. | 80% | ....... | ....... | ....... | ....... | ....... | ....... | ....... | ....... | ....... |
| R. B. C.* | 4,970 | ....... | ....... | ....... | ....... | ....... | ....... | ....... | ....... | ....... |
| W. B. C. | 22,050 | 32,600 | 35,650 | 23,600 | 30,400 | 39,200 | 36,800 | 52,500 | 65,600 | 65,000 |
| % Polynuclears | 40 | 42 | 16 | 33 | 32 | 41 | 24 | 30 | 37 | 42 |
| % Lymphocytes | 60 | 58 | 84 | 66 | 67 | 59 | 76 | 70 | 63 | 58 |
| % Eosinophils | .... | .... | .... | 1 | 1 | .... | .... | .... | .... | .... |

Gumprecht nuclear shadows, on an average of 15-20% of the total number of leucocytes, present in most of the smears.

*Red Blood Count designated in thousands.

Added to that was the unusual instability of the leucocytes, expressed by the high number of Gumprecht nuclear shadows. In some smears their number reached 15-20% of the total number of leucocytes. An accurate estimate of these nuclear fragments could not be made because of the shapelessness of many of them.

Returning to the type-cells. They were not cells ordinarily seen in leukemias. They strongly resembled cells which Downey⁽³⁾ considers as "plasma-cells derived from lymphocytes."

The association of such a bizarre blood picture with a carcinoma is rather unique. While the literature has numerous records of leukemoid blood pictures concurring with neoplasms of lymphoid tissue, there are very few cases mentioned in which such a blood picture is found co-existing or caused by an epithelial tumor. There is one case on record, though, reported by Silberstern and Pechterewa(10), which has so many points in common with this one, that a brief resume of it would be of interest. The patient, a male, aged 72, entered the clinic on account of cramps in the abdomen and a constant desire to defecate; the stools were often bloody. The leucocyte count ranged from 10 to 20 thousands, with 85 to 95% lymphocytes. The total leucocyte count was considered by the authors as probably much higher, because of the unusual number of Gumprecht nuclear shadows. The clinical diagnosis was "Subleukemic lymphadnosis, probable intestinal lymphomatosis with stenosis of the colon." At autopsy, an obstructing, ulcerating carcinoma was found in the rectum.

This case had so many points in common with our case that the question may be raised, "Is it pure coincidence or is there a more deep-seated reason for the similarity in the blood reactions, in these two elderly patients, to a primary affection of the intestinal mucosa?"

A few other instances are recorded in the literature where carcinoma of different organs was associated with a leukemoid blood reaction. Cabot, Case 19341(2), deals with a metastatic carcinoma of the pleura, pericardium and peribronchial glands (primary in the breast, removed over 3 years before) associated with a blood picture suggestive of chronic myeloid leukemia. Gittins and Hawksley(4) report a case of ovarian endothelioma, in a child 11 months old, where the blood picture was that of a monocytic leukemia. Winans(12) records a case with a leukemoid blood picture in association with a pseudomucinous cyst and papillary cyst-adenoma of the ovary. Winans' case, however, leaves some doubts about the correctness of his classification. From his description, one is more tempted to classify that case as infectious mononucleosis.

Seeman and Krasnopolski(9) report a case of gastric carcinoma with a blood picture of acute leukemia. Patrassi(6) describes a case of carcinoma of the neck diagnosed antemortem as lymphogranuloma (Hodgkins) because of an eosinophilia, as high as 18%.

## SUMMARY

Four cases are recorded; each one offering an individual hematologic problem. Case 1 in its terminal stage gave a frank blood picture of acute lymphatic leukemia; yet this patient, two weeks prior, had a blood picture compatible with an ordinary infectious process. Clinically the leukemic syndrome was absent. Histopathologically this was a case of sarcoma of the neck.

Case 2 had all the clinical manifestations of an acute leukemia. The blood picture, however, at the most could be labeled as that of chronic lymphatic leukemia. The cells were of the normal variety. The histopathologic diagnosis was lymphosarcoma.

Case 3 could, more fittingly than the other two cases, be diagnosed as acute leukemia from the beginning. In the main, though, this case was lacking clinically in severity to justify such a diagnosis. Though a leukemic state of the blood existed. the severity of the clinical manifestations was only proportional to degree of the mediastinal involvement. The degree of systemic involvement was relatively mild for the average case of acute leukemia.

While each one of the first three cases presented primarily a lymphoid tissue affection, Case 4 was obviously of a different nature. The presence of high numbers of abnormal lymphocytes in the circulation cannot be explained in this case on the basis of a breaking down lymphoid tumor. The blood picture was also less leukemic. The nature of the cells, however, as well as the total leucocyte counts may justly put this case in the category of leukemoid reactions.

Two conclusions may be drawn from the study of the above cases: (1) Malignant tumors of lymphoid tissue may establish a free communication with the circulation; tumor cells are fed then to the blood stream from such a focus. The cellular composition of the blood in such cases may be that of normal blood plus the added tumor cells. The tumor cells may vary in their make-up the same way as different lympho-sarcomata vary histopathologically. The blood, on examination, may have the appearance of leukemic blood. There is, however, this basic difference: In true leukemias we are dealing with a primary affection of the hemopoietic system as a whole and, because of that, all the elements of the blood are affected; whereas, in the blood dyscrasias on a lymphoid-tumor basis we may see abnormalities only in the lymphoid elements; the rest of the cellular constituents of the blood not being affected. Of course, sooner or later, a situation is reached where the hemopoietic tissue as a whole is hit by the malignant cells, and a picture of frank leukemia may set in. The first three cases exemplify atypical leukemic states superimposed on the basis of lymphosarcoma.

(2) Epithelial tumors ordinarily do not affect the cellular composition of the blood per se. A breaking down epithelial tumor may bring about puzzling bizarre changes in the blood.

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# DEFICIENT MENSTRUATION

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Deficient menstruation embodies menstrual irregularities in which the flow is deficient either as to time (oligomenorrhia) occurring once in 2 or 3 months, or the amount (hypomenorrhea) lasting only one day, or where the flow is totally absent (amenorrhea) and is not caused by pregnancy, lactation or mutilating operations upon ovaries or uterus.

## ETIOLOGY

There are three factors directly responsible for the normal process of menstruation, these are:

1. A normal uterus.

2. A normally functioning ovary.

3. A normally functioning pituitary gland, especially the anterior pituitary lobe, which is called the "Motor of the Ovary."

The disturbance of any one or of a combination of the above factors will usually result in a disturbed menstrual flow.

The disturbances connected with the uterus may be mechanical or physiological in nature.

A. Mechanical disturbances cover conditions in which the endometrium had been destroyed (1) by excessive doses of radium, (2) by cauterization, (3) too vigorous repeated currettments —with too little of the endometrium remaining for regeneration.

B. Physiological disturbances of the uterus cover conditions in which the uterus had never attained its normal size or had atrophied after having once attained maturity, and is usually secondary to some endocrin disturbance, as will be shown later.

The most common immediate cause of abnormal menstruation lies in an abnormally functioning ovary. It is well known that the maturing graafian follicle secretes a hormone, liquor folliculi or estrin, which causes growth and vascularity of the endometrium. After maturation of the graafian follicle and expulsion of the ovum the corpus luteum forms which secretes two hormones: estrin and progestrin, the former maintaining the growth of the endometrium and the latter producing nidatory changes in the endometrium and at the same time, inhibiting the development of new follicles. When the ovary is deficient, whether as a result of developmental defects or of acquired conditions, the follicle does not develop to full maturation, the ovum is not expelled nor is the corpus luteum formed; after reaching a certain stage of development the follicle regresses, degenerates, liquifies and is absorbed; the cavity being gradually replaced by connective tissue. This process is called "follicle atresia." Evidently the underdeveloped follicle does not produce enough estrin to stimulate normal endometrial growth and, as a result, depending upon the degree of the dysfunction we may have Amenorrhea—when the amount of estrin is totally deficient—Hypomenorrhea or Oligomenorrhea—when it is relatively deficient resulting in an imperfect and deficient premenstrual endometrium.

The causes of ovarian dysfunction or hypoactivity may be divided into: (1) local, (2) general. (3) endocrin.

A. Local Factors: 1. Pelvic inflammation, secondarily involving the ovaries may produce structural and physiological changes in the ovarian tissue as to render it less responsive to the normal stimulation from the pituitary.

2. Cervitis—with an ascending infection to the ovaries.

3. Retroversion of uterus, causing interference with the ovarian circulation. The latter condition, however, is more commonly associated with follicular cystosis producing hyperplasia of the endometrium and excessive bleeding.

4. Interference with the ovarian circulation, as a result of operative procedures, notably salpingectomy.

B. General Systemic Conditions: These conditions tend to alter the cell-physiology of the ovary to such an extent as to make it less responsive to the ordinary pituitary stimulation.

1. General debilitating condition, as: Primary and secondary anemias, T.B., acute infections and chronic intoxications.

2. Psychogenic amenorrhea associated with dementia precox, different forms of melancholy, especially the depressive type, epilepsy.

3. Psychic upsets: worry, anxiety, fear, despair, etc.

4. Insufficient or deficient nourishment—particularly deficiency of Vitamin E, excessive physical and mental work, especially in childhood.

5. Pelvic congestions caused by sexual abuses, contraceptives, etc.

6. Irrational radiation, irrational abuse of alcohol, nicotine, coccaine and other drugs.

7. Hofstatter also mentions an epidemic form of amenorrhea which was prevalent in Germany after the war and which the author calls "Kriegs Amenorrhea." It was probably caused by a combination of psychic and deficiency factors.

C. Endocrin Factors: Of the different endocrin glands responsible for ovarian malfunction the following are most important: (1) The ovary itself. (2) The pituitary gland. (3) The thyroid. (4) The adrenals.

1. The Ovaries: The cause of hypo-ovarian activity may lie in some intrinsic disturbance of the ovary itself—or primary ovarian failure. This may be either congenital or acquired and occurs more frequently at puberty when menstruation is becoming first established. According to Rowe and Lawrence it is responsible for 30% of menstrual deficiencies. In this condition, the ovary due to some intrinsic defects, does not respond normally to the usual pituitary stimulation, and as a result we have incompletely developed follicles which undergo degeneration before reaching full maturity—or follicular atresia referred to above.

2. Pituitary Gland: Hypoactivity of the anterior pituitary gland is the most important factor in the causation of the ovarian dysfunction. According to E. Novak, the endocrin functions of the ovary is physiologically subservient to that of the anterior hypophysis.

In cases of hypopituitary dysfunction the amount of the sex hormone secreted is not sufficient to bring about the normal complete development of the graafian follicle and as a result we have the condition of follicle atresia, heretofore mentioned. Mazer states that 65% of all cases of functional menstrual derangement are due to pituitary hypofunction. The pituitary dysfunction may be of varying degrees; from moderate—the most common type encountered, to the more severe types, as Frolich's syndrome or adiposogenitalia dolorosa, basophilic adenomas and the extreme type or Simmons' disease—which are clinical entities by themselves. All of these conditions are usually associated with genital hypoplasia and deficient menstruation.

3. The Thyroid: Thyroid, per se, is, comparatively, a rare cause of amenorrhea. According to Mazer hypothyroid cases comprise only 6% of the Amenorrheic cases. A subnormal B.M.R. does not necessarily mean hypothyroidism, as hypoactivity of the pituitary and ovaries is usually associated with a lowered B.M.R., however, not to the extent of that found in cases of hypothyroidism.

4. The Adrenals: Insufficiency of the adrenals is usually accompanied by deficient menstruation. However, according to Lawrence and Rowe "their action is secondary and resultant, not primary and causative." Curious enough, suprarenalism, while producing precocious puberty in the young, as a result of ovarian stimulation, produces "virilism," genital atrophy and deficient menstruation in the adult. The exact mechanism of this strange phenomenon is not known.

## PATHOLOGY

Regardless of the primary cause, all cases of deficient menstruation, with the exception of those where the uterus is the causative factor, show atritic follicles in the ovary but no corpora lutea—(capsule of the ovary may be thickened as the result of chronic inflammation). The uterus may be normal or subnormal in size; the endometrium, at menstruation, is usually of the intermenstrual type — devoid of premenstrual changes. The latter fact has been proven by removing small strips of endometrium by light currettage or suction, 3 days before menstruation, in cases of oligomenorrhea or hypomenorrhea.

## SYMPTOMATOLOGY

Absent or scanty menstruation may be associated with vasomotor symptoms, and occasionally with a high-grade psychosis, especially in the acquired type. Sterility is commonly associated with this condition. Of the 56 cases treated by L. Edecker 33 or about 60% were sterile. There may be other symptoms present referable to the primary cause of the condition—as in the case of hypopituitarism: girdle obesity, hypertrichosis, etc., these will be mentioned later.

### DIAGNOSIS

This relates to the determination of the cause of the condition, which is sometimes quite difficult to ascertain. Observance of the following points will help us materially in arriving at a diagnosis.

1. Obtaining a detailed history of the case, which may show sometimes the origin of the conditions in a post natal or post abortal infection, possibly some operative procedure, as too vigorous a currettment, intrauterine radium application, etc.

2. Complete menstrual history — this may throw light upon the sexual development of the individual—as for instance, in the case of a late onset of the catamania, at the age of 16 or 18, you would suspect some deficiency of the ovarian or pituitary glands.

3. A general physical examination—to eliminate general chronic conditions—as anemias, T.B., and other conditions.

4. Gynecological examination may disclose an infantile or atrophic uterus, pelvic inflammatory conditions, chronic cervitis, etc. The finding of a small, hypoplastic uterus in these cases is quite common, because, regardless of the primary cause, the uterus, deprived of stimulation from the ovaries, undergoes atrophic changes and greatly diminishes in size. This can be easily ascertained by introducing a uterine sound: instead of measuring 3½ to 4 inches the uterus may measure only 1 to 2½ inches in length.

5. Endocrinological examination, which would reveal the gland primarily affected and responsible for the condition. The careful observation and evaluation of the physical attributes of each case will aid materially in determining the particular gland affected. The dysfunction of the different endocrin glands brings about certain physical changes which are peculiar to each individual gland. Thus in primary ovarian failure —the patient is usually slim, with a definite feminine demeanor, overgrowth of the long bones, narrow pelvis, scanty distribution of hair on the body. She is alert, emotional, self-centered, has a soft skin, small larynx, soft voice, genital hypoplasia, and is usually below normal in weight. Easily fatigued (in the absence of physical exertion) she may suffer from visceroptosis.

The hypopituitary type which constitutes 65% of all endocrinopathies show the following characteristic features: Obesity of the girdle type, involving the hips, lower abdomen, breasts; undergrowth of long bones, small hands, tapering fingers, hypertrichosis or male distribution of hair over pubis and along inner sides of the thighs, contraction of visual fields. It is more common at the two extremes of menstrual life; puberty and early menopause.

The hypothyroid type may show the following stigmata. Physical and mental sluggishness, headaches, dry skin, and obesity, which is general all over the body, thus differing from the pituitary type which is more localized, as given above.

### LABORATORY TEST

There are two laboratory tests which are very helpful in determining the endocrinopathies present, these are:

1. The Frank-Goldberger-Estrin, test which is based on the observation that all normal women show the presence of at least one mouse unit of estrin in 40 cc. of blood about three days before menstruation when the estrin content is at its highest level. Failure to find the indicated amount of estrin in the blood at once establishes the diagnosis of ovarian hypoactivity.

2. The other test is the Fluhman test for the presence of the anterior pituitary sex hormone in the blood, and is based on the principle that normal, non-pregnant women, during the childbearing age, do not show presence of the above hormone in 30 cc. of blood. It is also absent in cases of pituitary hypofunction. On the other hand, in cases of ovarian hypofunction, there occurs a compensatory hyperactivity of the anterior pituitary which is shown by the presenece of at least one R.U. of the pituitary sex hormone in 30 cc. of blood. Thus—a negative Frank-Goldberger and a positive Fluhman are indicative of primary ovarian malfunction. On the other hand if both are negative, the pituitary is usually the primary cause of the condition.

Another laboratory method which may be helpful is the sugar tolerance test which is low in ovarian hypoactivity but is high in pituitary hypoactivity. The basal metabolism test is usually slightly below normal in these cases but considerably below normal in thyroid cases.

### TREATMENT

Any systemic condition should be corrected. That includes removal of any foci of infection and correction of faulty diets (deficient in vitamin E, green vegetables). However, this measure alone will not restore normal menstruation, especially if the latter is of long standing, for the reason, that the uterus in these cases undergoes atrophic changes and as such may not respond to the ovarian stimulus, even if that were restored to normal.

### ESTRIN

Therefore, regardless of the primary cause, treatment should be applied with the object of restoring the hypoplastic uterus to its normal size. And of the different measures employed the following two stand out as preeminently successful: these are Estrin and Diathermy. Estrin should be administered in doses of 50 to 200 R. U. daily, by hypo, and 3 to 4 times that amount by mouth, which treatment may have to be continued for several months until appreciable growth of the uterus had been obtained, as shown by the uterine sound. However, the administration of estrin should not be continued too long, nor should it be given in too large doses. As it had been proven experimentally by Hisau and others that the continued administration of estrin has a restraining effect on ovulation and may even cause atrophy of the ovaries. In consideration of this fact the administration of estrin is absolutely contraindicated in cases where the uterus is of a normal size and where the Frank-Goldberger test is positive for estrin.

### DIATHERMY MEDICAL

Diathermy applied by means of the Chapman electrode to the cervix and the other electrode externally over the uterine region, by improving the circulation of the parts, has a double effect, first alleviating any inflammatory conditions present and, secondly, actually stimulating uterine growth. The treatment should be given 3 times a week for 20-30 minutes. The temperature I am using is 108 to 110.

### ANTERIOR PITUITARY SEX HORMONE

Anterior pituitary sex hormone or prolan is indicated in cases which show a hypopituitary dysfunction. It had been definitely shown that the pituitary prohormone, prolan, is more effective in these cases than the anterior pituitary hormore proper. The reason being that while the later is merely substitutive in its action, the former is stimulative, to the extent that the hypoactive pituitary may correct itself to normal function. It is best administered in small doses of 30 to 40 R. U. every other day. Mazer and Katz report better and quicker results obtained when 4 cc. of growth hormone from the anterior pituitary is added to the prolan injected for amenorrhea, to be administered twice a week for 8 or 12 weeks. It would be useless to employ it in cases of primary ovarian hypofunction because these cases, as mentioned elsewhere in this paper, usually are associated with a compensatory hyperactivity of the pituitary gland. The administration of antuitrin S. in these cases would be not only valueless, but occasionally definitely harmful, as it may bring about a condition of hyperluteinization with persistent corpus luteum, which in itself is a causative factor of delayed menstruation, as proven experimentally and clinically by Zondek, Mazer and Goldstein.

### X-RAYS

Small, so-called stimulative doses of x-rays, have proven of great value in the treatment of these conditions. Favorable results are reported by a number of gynecologists, here and abroad; Opitz, Frankel, Doderlin, Hirsch, Rubin, Mazer and others.

While the mode of action is not definitely known, the results achieved by their use have been well demonstrated. Of the 56 patients of amenorrhea treated by L. Edeiken 40 had a menstrual period after 6 weeks of treatment. The dose recommended is 1/10 S.E.D. applied to ovary or pituitary, all depending upon the gland primarily affected, sometimes both the ovaries and pituitary have to be treated. One treatment a week for three weeks is usually sufficient. According to Arndt-Schmidt "a minute dose of x-rays stimulates functions, moderate doses strengthen and large doses inhibit function, a very large dose destroys function." It would seem, therefore, that x-rays are, so to say, a two edged weapon, and one should be cautious about its employment. According to Anspach-Hoffman its use should be reserved only for those cases in which other methods of treatment have been tried and failed.

It is the opinion of these men that irradiation is contra-indicated in cases of frank ovarian failure, because it may permanently destroy the already hypofunctioning follicular apparatus. Mazer states that in his experience hypomenorrheic patients are less likely to respond to low dosage irradiation of the ovaries than are amenorrheic patients. In fact, some hypomenorrheic women become amenorrheic after irradiation. He makes it a rule to discontinue Roentgen therapy in any case, if the first series of three exposures produce no improvement. However, if improvement follows the first course of three treatments, a second and even a third course may be administered at 3 or 4 months intervals. He also cautions against sexual relations during the course of the treatment, as in case of conception, the irradiation may have a deleterious effect upon the embryo. Personally, I did not have any experience with its use.

### MECHANICAL TREATMENT

This treatment consists mainly of repeated bimanual palpitation of the ovaries, which are manipulated between the fingers, with the object of rupturing atretic follicles and persistent corpora lutea. Massaging the hypofunctioning ovaries may also have a stimulating effect on the circulation of these organs thereby improving their function, not unlike that exerted by diathermy.

### THYROID TREATMENT

As the thyroid is considered the motivator of the rest of the endocrin glands it is indicated in all cases of glandular hypofunction whether it be pituitary or ovarian. It is especially indicated in cases where the metabolic rate is low—10 to 15%, even in the absence of hypothyroidism.

But it should be used only as an adjuvant to other glandular products, except in cases where the menstrual dysfunction is manifestly the result of hypothyroidism only. (We must remember, however, that, according to I. Bram, (Goiter, The Maxmillan Co., N. Y.) hypomenorrhea or amenorrhea are not characteristic of hypothyroidism; indeed, the latter is usually associated with excessive bleeding or menorrhagia).

When used in these cases of deficient bleeding the dose should be from ½ to 1 gr. tid. and the effects on the pulse or B. M. R. watched carefully. I use the pulse rate alone as criterion for these cases, as it is convenient for me and cheaper for the patient and it is quite dependable. With the acceleration of the pulse rate, the dose should be reduced or the medication entirely abolished.

The treatment outlined had been used extensively at the Creighton Medical Dispensary with gratifying results. The secondary amenorrheas usually respond more readily than the primary cases.

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# NON-SPECIFIC GRANULOMA OF THE GASTRO-INTESTINAL TRACT*

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The increasing frequency of recognition of non-specific granuloma of the gastro-intestinal tract, most often encountered in the lower ileum as "regional (terminal) ileitis", the difficulties of distinguishing the condition from tuberculosis and tumor, and the desirability of early diagnosis to prevent very radical surgery necessary in late diagnosis, warrant a discussion of the condition and addition of four cases.

### PATHOLOGY

The lesion is a chronic infiltrating inflammation of the involved portion of the gastro-intestinal tract, involving all four coats, with variable degrees of ulceration of the mucosa and encroachment upon the lumen, and sometimes the formation of adhesions or fistulas.

According to Crohn(1) the tumor-like masses occur most often in the ileum and in young individuals but may be found in the stomach, large intestine, pancreas, and even in the mesentery with secondary invasion of the bowel wall. Moynihan(2) describes six cases involving the colon or rectum. From several inches to several feet of the bowel may be indurated. Erdman and Burt(3) report five cases in some detail, and in each it was necessary to resect the lower several feet of ileum, usually the cecum and a part of the colon. In one of our cases sixteen inches of terminal ileum were removed, in another fourteen inches from the midportion of the ileum, in a third the terminal four inches of ileum, cecum and appendix, and in a fourth a portion of rectum

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On opening the abdomen there is found diffuse thickening of the involved bowel, often with marked narrowing of the lumen. When the narrowing is marked there is dilatation of the bowel above the inflamed zone. The thickening may give the bowel the consistence of a piece of garden hose. In some cases there are adhesions to other portions of the small or large bowel and bladder, with involvement at points of adhesion, and variable amounts of straw-colored fluid in the peritoneal cavity. In regional ileitis Crohn points out the frequency of fistulas.

On opening the resected portion there is seen edema of all coats and slight to extreme ulceration and polypoid thickening of the mucosa. The fibrous thickening may be most marked in the mucosa and submucosa or serosal coat and the lumen may be quite narrow.

Microscopically the picture is quite variable. There may be active cellular infiltration by polymorphonuclear neutrophiles, eosinophiles, lymphocytes, large mononuclears, and plasma cells on a fibroblastic background. Actual abscesses may be present in any layer, and ulceration or polypoid overgrowth of the mucosa is encountered. Sometimes the degree of fibrosis is marked, and the above described cellular infiltration minimum. Foreign body giant cells and ill-formed tubercles are sometimes present and the resemblance to tuberculosis may be close.

### ETIOLOGY

The cause is unknown although surgeons suggest that a toxic, infectious or traumatic agent damages the mucosa and permits entrance of the infecting agent. In many cases foreign bodies have been found and regarded as causative. In one case a fish bone was found by Jaffe(4), in another cherry pits by Schreiber(5), and in another silk ligatures by Tietz(6). Mock(7) reports an example caused by a sponge left in the abdomen, while Bull(8), Coley(9), and Braum(10) attributed several instances to massive ligature of the omentum. Senn(11) attributed one example to fruit cake ingested nine months previously and lodged in a diverticulum. Rosenheim(12), Moskowitz and Wilensky(13) and several others report dysentery or colitis preceding the onset of granuloma. Whether the dysentery or colitis was the cause of or a part of the process is hard to determine, as many of these cases have an associated intermittent diarrhoea. Diverticulitis of the sigmoid or gastric ulcer, as suggested by Mock(7), may be causative.

The diversified etiological factors suggested indicate a lack of knowledge of the true cause, except as indicated.

Birt and Fisher(14) report cases due to ameba, but found cocci and bacteria in resected tissue and classified them as non-specific infiltrations.

### SYMPTOMS AND SIGNS

In the inflammatory stage mild, aching abdominal pain with local tenderness, and occasional attacks of nausea and vomiting with slight fever, are seen in most cases. These attacks are repeated at intervals over a period of years.

With advance of the lesion to the ulcerative and perforative stage, as occurs in many cases, the symptoms become more severe. Excerbations suggest an acute abdominal condition and many patients are operated upon for acute appendicitis or diagnosed "diverticultitis" a year or two before obstructive symptoms develop or a mass is felt. In one of our cases a perforation was present between adherent portions of ileum.

As the lesion progresses to occlusion of the lumen symptoms of obstruction appear. There are anorexia, weight loss and spasmodic abdominal pain worse after ingestion of coarse foods. Marked peristalsis occurs, with distention, nausea and vomiting with marked constipation or intermittent diarrhoea depending upon the location of the lesion.

A tender mass may be felt in the abdomen. Physical examination reveals a pale undernourished person chronically ill. Often a movable tender mass is felt at the site of developing obstruction.

### X-RAY

Kantor(15) has called attention to the advisability of x-ray study of the small intestine in obscure cases of apparent colitis. He studied six cases of terminal ileitis and concludes that the chief changes in the ileum are: (1) filling defect just proximal to the cecum; (2) abnormality in contour of the last filled loop of ileum; (3) dilatation of the ileac loop just proximal to the lesion; (4) a 'string sign' representing the actual lesion.

In the early stages, when diagnosis is desirable and essential to prevent extensive involvement and the necessity for very radical measures, x-ray findings are usually negative. This was true in one of our cases and has been reported by many other observers.

Crohn(1) regards the 'string sign' as almost pathognomonic, as it does not occur in Hodgkins disease, sarcoma or tuberculosis. The ileac pathology produces a spasm in the cecum and colon in most cases in which no organic pathology can be directly demonstrated in the colon or ileum.

Weber(16) of the Mayo Clinic employs a reflux barium enema through the ileo-cecal valve to visualize the ileum, with varying success.

Some x-ray method may be devised whereby early pathology of the small intestine may be recognized.

### DIAGNOSIS

Diagnosis is extremely difficult. Malignancy is usually diagnosed before operation. Chronic ill health with intervening periods of good health, increasing constipation with or without intermittent diarrhoea, anorexia, weight loss, weakness and an abdominal mass would suggest the disease. The x-ray may indicate encroachment upon the lumen of the bowel, but does not establish the pathology responsible. Laboratory findings are not of much value. The above described history, with a tender palpable mass, justify operation and exploration.

### TREATMENT

Resection and anastomosis, the recognized method, is in most cases satisfactory and curative. In advanced cases with a great deal of involvement a preliminary ileostomy or cecostomy may be advisable to tide the patient over.

In many patients with the appearance of inoperable carcinoma a sidetracking anastomosis should be done and a portion of the tumor removed for pathological study. The many reported cured cases of inoperable carcinoma suggest non-specific granuloma.

After a sidetracking operation, if the pathological report indicates a granuloma and the mass does not disappear, resection may be done as the patient's condition permits.

Case 1, No. 273338, November, 1926. A 45 year old truck farmer was troubled with abdominal pain at intervals for four years. The pain began around the umbilicus and went through to the back, was rather sharp, not accompanied by nausea or vomiting, and the first attack lasted two days. Two years intervened before the second attack. A year later the attacks became more frequent, lasted three to five days, and were more severe when he ate coarse food. There were anorexia and loss of weight, with occasional vomiting and distention.

Six weeks before admission his appendix was removed. Recently there had been frequent urination and on several occasions some blood in the urine. He vomited the day before admission.

Physical examination disclosed a moderate degree of tenderness about the umbilical area, extending about 3 inches above and below and about 5 inches to the right. There was tenderness in the splenic area. The abdomen was somewhat distended and there was visible peristalsis.

The leucocyte count was 12,200 with 75% polys, while the Hgb. was 90%. There was an occasional hyaline cast in the urine and an occasional pus cell. The blood contained 717 mgms. of chlorides per 100 c.c. Diagnosis: Partial obstruction probably adhesions.

Operative findings: The abdomen was filled with straw colored fluid. The small bowel above the constriction was dilated to three times its normal size, and was congested. The lower 16 inches of the ileum was thick walled and the lumen apparently encroached upon by multiple masses in the wall. The wall of the bowel, especially the peritoneal coat, seemed scarred. The lower 16 inches of the ileum were resected and an ileostomy done.

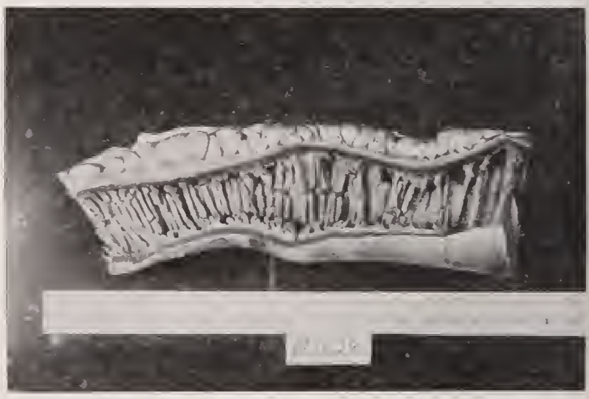

Fig. 1. Photograph of gross specimen resected in Case 1 revealing tremendous thickening of wall.

Pathologic description of specimen removed: "A resected portion of the small bowel about 16 inches long and 4 cm. in diameter. It is very firm and the peritoneal coat is gray and somewhat roughened and wrinkled in places. On opening the bowel the mucosal folds are seen to be thrown up into high transverse elevations and there are numbers of superficial ulcerations which involve only the mucosa. The muscle coat is 3 or 4 mm. thick and the peritoneal coat 1 mm."

Microscopic: "All layers of the wall are thickened. There is considerable mucus in the epithelia and many lymph nodules are seen. There is considerable edema of the mucosa and submucosa. Scattered through all layers of the bowel wall there are numbers of polymorphonuclear eosinophiles and lesser numbers of large mononuclears and plasma cells. There is fibroblastic proliferation in the supporting stroma of the muscle layer." Diagnosis: Non-specific granuloma.

The postoperative course was stormy and symptoms of obstruction recurred. When the abdomen was again opened the cecum was found adherent to the opening in the abdominal wall and the distal end of the ileum. An ileocecostomy was done, but the obstruction was not relieved and the man died a few days later. Autopsy refused.

Late diagnosis was probably responsible for this death.

Case 2, No. 3112-2. admitted May 19, 1933. Male, aged 20 years. For the past three years he has had frequent attacks of spasmodic abdominal pain and vomiting, with slight fever, constipation, anorexia, and gradual loss of weight and strength. Lately these attacks were more apt to occur after heavy coarse food and have increased in frequency and intensity. For five days preceding admission even liquids were vomited and the pains were spasmodic and intense, with marked peristalsis, distention and obstipation indicating obstruction. A tender egg-sized mass could be palpated in the L. R. Q. two years ago and an appendectomy was done for relief of preobstructive symptoms. On the third postoperative day he had an attack of about 48 hours duration that corresponded in every detail to the previous attacks for which the appendectomy was done. He was discharged in 10 days apparently well. Later the symptoms recurred, the appendectomy affording no relief. One year later x-ray examination of the gastrointestinal tract was negative and revealed no filling defect, dilatation of the ileum, or string sign.

Present admission—Hgb. 85%, red 4,500,000, white 9,800 with 84% polys. Wassermann—negative. A barium enema of the colon was negative.

Three days after the present admission the abdomen was opened with a preoperative diagnosis of partial obstruction and probable malignancy. Considerable straw colored fluid was encountered. In the midline and slightly to the right a mass about the size of a large orange was found, composed of a loop of ileum sharply kinked. The apposing walls were firmly adherent together and the apex of the angle was adherent to the sigmoid by very firm adhesions. This point undoubtly indicated a near perforation. The ileum proximal to this area was dilated and hypertrophied. There was a marked plastic exudate in this area. The cecum was freely movable and not involved. The sigmoid was dissected loose, that portion of ileum containing the tumor mass mobilized, about fifteen inches resected and an end-to-end anastomosis done. The involved portion of ileum was approximately 30 inches from the ileocecal valve.

Pathology report, gross: "A resected portion of small intestine 15 cm. across, composed of two portions of ileum adherent to one another for a distance of about 3 cm. where the wall of the bowel is 1 cm. thick. The lining is rough and superficially ulcerated. The muscle layer is 6 mm. thick. The portion of bowel above the adherent zone is thickened and dilated. There is a diverticulum of the small bowel between the resected adherent portions of the gut."

Microscopic: "In sections taken from many points in the thickened zone for histological study the epithelial lining of the bowel is replaced by granulation tissue infiltrated with small lymphocytes, large mono and polynuclears. There is excessive new formation of capillaries. There are many lymph nodules in all layers of the bowel, together with diffuse fibrosis and extreme infiltration with eosinophile polymorphonuclears and foreign body giant cells in ill formed tubercles. There is edema and hemorrhage of outer coats of bowel."

That pathological diagnosis was chronic non-specific inflammation with adhesion between two portions of resected ileum and traction diverticulum and hypertrophy.

The post-operative course was very stormy. There was considerable colicky pain and distention, marked constipation, vomiting and anorexia.

Three weeks after operation symptoms had not abated and an opaque colon enema was given. Dr. J. F. Kelly reported that there was some degree of obstruction at the splenic flexure of the colon and some narrowing in the lower sigmoid. A cecostomy was done June 14, 21 days after the resection. The patient improved steadily after the cecostomy. Four months later the opening in the cecum was closed. The patient left the hospital November 26, 1933, about 6 months after admission. At that time he weighed 80 pounds. Six months later he weighed 140 and now 160 pounds. He feels well, eats what he desires and has no bowel trouble, pain or constipation.

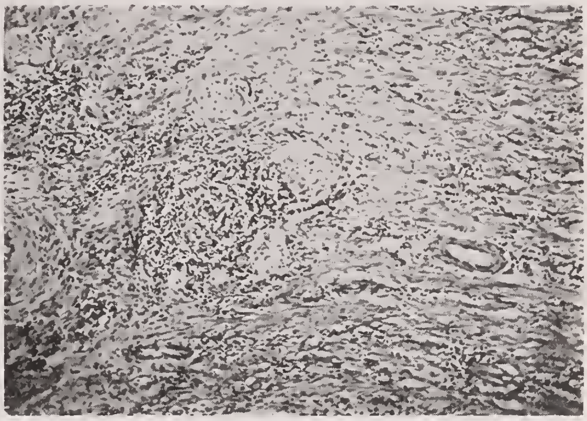

Fig. 2. Low power photomicrograph of submucosa in resected specimen, Case 2, revealing ill-formed tubercles and foreign body giant cells.

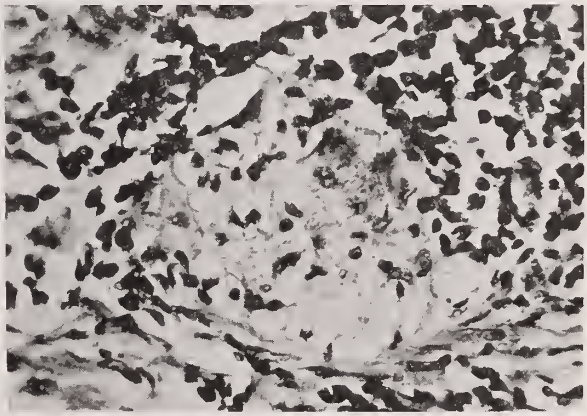

Fig. 3. Low power photomicrograph of tuberclein submucosa in resected specimen, Case 2, revealing foreign body giant cells.

Case 3. G 103.

This material was sent in to one of us (BCR) for diagnosis with following history:

Male, age 45 years. Complained of pain distention, vomiting, marked constipation and anorexia at frequent intervals for four years. There was weight loss and a palpable mass in right lower quadrant.

Diagnosis: Carcinoma of the cecum.

At operation on May 31, 1927, the lower 4 inches of the ileum, cecum and appendix were removed.

Pathological description: "Lower 6 cm. of ileum, cecum, appendix and portion of mesentery of small bowel en masse. The mesentery is thick and on section contains many lymph nodes up to 1.5 cm. in diameter, homogeneous and gray. On the peritoneum over the ileum are many gray, pinhead sized elevations. The wall of the ileum is thickened and just proximal to the ileocecal valve, on the anterior wall, there is an ulcerated area with ragged edges 1.5 cm. in diameter. The lining and lumen of the cecum are unchanged, although the ileum bulges into the cecum. The appendix is 7 cm. long, 0.9 thick, and quite stiff. On section the wall is fibrosed, while the mucosa seems thickened. The lumen is small and round."

Microscopic: 1. Ileum quite thick, extensive infiltration of all coats, with eosinophiles (mostly multilobular), a few small monos and some large monos. In the mucosa are numbers of plasma cells. In one region there is marked swelling of lymphoid follicles, while the surface epithelium is gone. No giant cells or caseation.

2. Ileocecal junction. Extensive hyperplasia of lymphoid tissue on the ileal side, with ulceration and destruction of mucosa. The thick wall of tissue is made up of small lymphocytes interspersed with large mononuclear cells, plasma cells, and eosinophiles. Clumps of the same type of tissue are found in the stroma throughout the wall and on the surface.

Microscopic diagnosis was non-specific granuloma.

Course: Death several days later. No autopsy.

In this case also an early diagnosis might have influenced the result.

Case 4. No. 27972-2. Admitted November 24, 1932. White, emaciated male, age 62 years, complaining of diarrhoea of six weeks duration, gradually progressing to about 15 stools a day with some blood at times, with considerable pain and spasm in rectum. Has lost 30 pounds.

History negative. Examination negative except a hard irregular non-circumscribed mass involving rectal wall. Blood pressure 90/60.

Laboratory: Slight anemia. Stool negative for ameba. Wassermann negative.

Gastro-intestinal x-ray negative except for slight dilatation of small intestine. No colon findings. Diagnosis: Carcinoma of rectum. Resection of involved portion of rectum was done. Discharged from hospital three weeks later.

Microscopic: "Extensive ulceration with rather marked fibrinous reaction and mono and poly infiltration of the granulation tissue bed. The inflammation involves the muscular coat in some places. In one place there is a portion of mucosa intact but markedly inflamed. No ameba found. Outer coat contains groups of lymphocytes and large monos grouped around vessels."

Diagnosis: Subacute ulcerative non-specific proctitis. No evidence of malignancy.

Present condition two and one-half years after operation: Gained 60 pounds in weight. No recurrence locally. No bowel trouble. Patient feels well.

## SUMMARY

Four cases of non-specific granuloma of the gastro-intestinal tract are described. This condition occurs more frequently than the literature would indicate. It is most common in the terminal ileum or colon, but may involve any part of the tract. It may start in the mesentery or omentum infiltrate the intestinal wall, encroaching upon the lumen, and may cause obstruction.

The etiology is unknown. Chronic infection of the wall due to injury or irritation of a foreign body are probable causes.

Diagnosis before microscopic examination is difficult. The usual diagnosis is malignancy or tuberculosis.

Operation with excision where possible is curative. Sidetracking anastomosis or simple laparotomy with drainage has been said to be sufficient in some cases. A portion of every inoperable gastro-intestinal tumor mass should be removed for microscopic examination.

Prognosis is very good after excision except in very late cases with extensive involvement.

Cured cases of carcinoma of the gastro-intestinal tract following sidetracking anastomosis suggest non-specific granuloma. Obscure cases of chronic colitis on x-ray examination of ileum may show ileitis or non-specific granuloma.

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## DISCUSSION

B. C. RUSSUM, M. D. (Omaha): Mr. Chairman and Gentlemen: The increasing frequency of recognition of this particular condition seemed to warrant bringing this lesion up for discussion today. Perhaps the term "non-specific granuloma of the intestinal tract" is preferable to any other. We are already somewhat familiar with the term signifying the chronic non-specific lesion affecting the lower ileum and usually going on to the point where resection of the lower ileum and cecum and part of the colon is necessary—terminal ileitis.

I might stress one point touched upon briefly by Dr. Shramek—the close similarity of this particular condition to chronic hyperplastic ileocecal tuberculosis. There are two types of tuberculosis involving the gastro-intestinal tract—one with which you are fairly familiar, characterized by ulcerated lesions scattered through the ileum and jejunum and to a lesser extent throughout the colon. Ulcers line the bowel and the lesions can be identified by the tiny tubercles in the serosa seen from the outer surface. That is a commonly recognized type of tuberculosis. The other type of intestinal tuberculosis is chronic hyperplastic tuberculosis of the ileocecal region and is not so easily recognized. No doubt many lesions have been so labeled which are non-specific granulomata. The microscopic similarity of the two lesions is close. The non-specific granuloma contains scattered tubercles, some of which have giant cells in them. They are of the foreign body type. The tubercles are not of the exact type seen in tuberculosis. Hyperplastic tuberculosis produces a thickening, non-ulcerative, involving the submucosa, and is not characterized by very much caseation. We must be on guard to avoid calling the non-specific granulomata chronic hyperplastic tuberculosis of the ileocecal region.

DR. SHRAMEK (closing): I do not know of anything I can add except that I believe if we could diagnose this condition earlier—probably many are going without recognition for years—it would help materially in the outcome.

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# PROGRESS OF SURGERY

(A Review of the Literature for the First Six Months of 1935)

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## NECK

Lahey(1) has recently described an operative procedure for the elimination of trachea constriction due to thyroiditis In this operation he removed the isthmus of the thyroid. He sutured the cut ends of the gland if possible. Often this could not be done owing to the wood-like firmness of the gland. In the latter cases, to prevent union of the two cut ends of thyroid, he sutured the sternohyoid muscles to the trachea well out on its lateral wall so as to produce a wide gap between the muscles of the two sides. In this way the cut surface of the gland was covered by muscle.

## THORAX

In the past there have been many articles written about penetrating wounds of the heart but practically nothing about non-penetrating cardiac trauma. The latter has recently been very ably discussed by Beck(2) who gave a review of the literature, human case reports and experimental work upon the subject. He stated that when a heart receives a contusion, one of three possible courses is taken: (1) The heart ruptures; (2) the heart fails without rupture; (3) recovery takes place. The review of the literature showed 175 patients with non-penetrating wounds of the heart. Of these, 152, or 87 per cent, died from rupture of the heart; 11, or 6 per cent, died from myocardial failure; and 12, or 7 per cent, recovered.

From the experiments by himself and Bright, Beck concluded that the heart can tolerate an excessive amount of trauma, that recovery is the rule rather than the exception, and that if death occurs it is caused by ventricular fibrillation, rupture or myocardial failue coming on after a tachycardia. He stated that rupture is a rare complication of a cardiac contusion; nevertheless, the literature consists almost entirely of these rare cases of rupture. The vast majority of cases of cardiac contusion recover and go unrecognized.

He felt that exploratory pericardiotomy with drainage of blood from the pericardial cavity and suture of the heart should be a much more frequent operation. He also showed that in cases of contusion of the heart, there is more softening of the heart muscles in the second week and, therefore, it is very important at this time to keep the patient at rest to avoid secondary rupture of the heart.

## GASTRO-INTESTINAL TRACT

When an organ is active in the elimination of a drug, that drug, if it has an antiseptic action, is frequently found to be beneficial in combating an infection of the organ. Iodine is promptly and rapidly eliminated by the parotid gland. Leithauser and Canter(3) have tried Lugol's solution by mouth and by hypodermocylsis in the treatment of ten cases of acute secondary parotitis. Two cases went to abscess formation. There were no deaths. They gave Lugol's solution, minims xx, by mouth every three hours, day and night. until recovery. In the more severe cases it was also administered by hypodermoclysis in saline. They also advocate daily aspiration in cases of suppuration. This frequently made incision for drainage unnecessary.

Portmann(4) has done some rather interesting work upon the treatment of salivary fistula by irradiation. He found that secretory activity of the salivary glands may be suppressed by irradiation and, therefore, may bring about a cessation of drainage in cases of parotid fistula. The function of the gland may be resumed in about four months, but in the meantime the fistula usually closes. If seepage recurs, the fistulous tract might be mildly cauterized and the gland again irradiated. Also irradiation might be employed to suppress the salivary secretion temporarily before a plastic operation is performed in particularly obstinate cases. Although it is possible to destroy the function of the gland permanently by irradiation, if necessary, in some cases temporary suppression will suffice to effect closing of the fistula.

On account of the difficulties encountered in the surgical treatment of salivary fistulae and because the irradiation is so easily applied and so successful, it would seem advisable always to employ the latter method first and to reserve operative procedures for the cases which possibly, but improbably, might not respond to irradiation therapy.

Included in most series of achalasia of the cardia or cardiospasm, according to Knight(5), are three conditions, true achalasia, cardiospasm, and hypertrophic stenosis of the cardia. The first two result from autonomic imbalance in the control of the cardia and are improved by sympathectomy. In this operation a portion of the left gastric artery with its accompanying nerves is excised. The third type stands in the same relationship to achalasia or cardiospasm as does hypertrophic pyloric stenosis to pylorospasm. It is a separate entity and shows little improvement following sympathectomy.

Pribram(6), Professor of Surgery at the University of Berlin, uses ether to dissolve common duct stones that he is unable to remove by a supraduodenal incision. Through a drain placed in the common duct at operation, he injects several cubic centimeters of ether. The injection is borne by the patient generally without complaint. Never inject over 2 or 3 cubic centimeters at one time. The tube should be left open after the injection or else undue pressure would be produced in the epigastrium, as a result of the evaporation of the ether which takes place at body temperature. This method is used in place of the retroduodenal or transduodenal method. The ether dissolves stones even when they are embedded in the wall of the common duct. This method is of value, too, in the treatment of biliary fistula caused by stones which were overlooked in the common duct when operation was first carried out. By means of the injection of iodized oil through the drain and the taking an x-ray photograph, he determines whether the common duct and papilla are absolutely freed of stones before removing the drain.

One of the main functions of the gallbladder, says Pribram, is to serve as an overflow reservoir, equalizing the oscillating pressure in the common duct and regulating this pressure. After cholecystectomy, he states, the inclination of the sphincter of Oddi to spasm has in many cases increased especially if the patient is constitutionally inclined to spasm generally. In order to keep this duct pressure better regulated, he advocates, in the spastic type of individuals with gallbladder disease, to anastomose the gallbladder fundus to the common duct. This gives adequate drainage to the gallbladder and so cures the infection and avoids the ascending infection which so commonly follows anastomosis of the gallbladder to the stomach or duodenum.

Cantarow, Gartman and Ricchiuti(7) have been studying the effect of cholecystectomy upon hepatic function. They found a temporary increase in serum bilirubin occurred in 63 per cent of the patients with normal preoperative hepatic function. Postoperative retention of dye was found in 39 per cent of patients in this group.

This temporary postoperative impairment of hepatic excretory function bore no constant relation to the nature or duration of anesthesia or to the preoperative state of hepatic function in this group of patients. It is believed to be dependent probably on the decrease in the volume of the flow of bile which follows cholecystectomy and which interferes with the mechanism whereby a damaged liver compensates for impairment in its ability to concentrate certain solid constituents of the bile. Patency or occlusion of the cystic duct appeared to be of significance in determining the occurrence of these postoperative functional abnormalities.

A study of the literature of cholecystogastrostomy has shown a fear of hepatic infection as a sequel to the operation without confirmatory evidence in the form of clinical, operative or postmortem reports of cases.

The results of previous experimental attacks on the problem confirm this fear. These, however, are subject to serious criticism in their application to the human being.

The work of Gentile(8) experimenting on twenty-two dogs with the use of the gastric pouch and cholecystogastrostomy showed results tending to discredit the common opinion among surgeons that hepatic infection is a dangerous sequel to cholecystogastrostomy.

Intraperitoneal injections of Coli-Bactragen (Steinberg) were given to seventy-nine patients by Potter and Coller(9), most of whom required major operations upon the colon.

A favorable clinical response and striking peritoneal reaction (seen at operation) was observed in practically all cases. This ranged from mild hyperemia of the peritoneum to the production of an abundant exudate, in some instances giving the appearance of a true fibrino-purulent peritonitis.

Peritoneal vaccination is of questionable value in protecting the peritoneum against gross fecal contamination. Its usefulness has been demonstrated as an aid to the peritoneum in its defense against minor degrees of soiling and infection.

Although this report is based upon a relatively small number of cases, the low incidence of peritonitis (one case in this group) appears to justify the procedure as a valuable adjunct in the preparation of patients for operations upon the colon.

### POSTOPERATIVE TREATMENT

The use of a properly functioning nasal catheter with applied suction is an efficient way of controlling postoperative nausea, vomiting and distention and should be used prophylactically in cases in which this triad is anticipated.

Northrop (10) found that it causes a drop in the blood chlorides, an elevation of the carbon dioxide combining power toward or into alkalosis, an elevation of the hemoglobin content of the blood and an increase in the red blood cell count.

The marked changes in the chlorides, hemoglobin and red cell content of the blood and the changed carbon dioxide-combining power accompanying continuous lavage of the upper intestinal tract produce few, if any, untoward symptoms.

Of the various methods of administering paraoral fluids, continuous venocylsis appears to be most effective in controlling the changes in the blood incident to continuous duodenal suction.

Administration of the aspirated intestinal contents in the form of retention enemas does not cause rectal irritation and deserves further study as a means of combating postoperative dehydration and the loss in chlorides and the alkalosis incident to obstruction of the bowels and continuous lavage of the stomach.

Carlson and Orr(11) determined that local applications of heat to the abdomen produce a rise in temperature within the abdomen if the abdominal wall is not too thick. Definite penetration was noted in the child and in the dogs, but the penetration in the adults was negligible. Prolonged application of heat did not increase the degree of penetration. The application of heat to the abdomen or of warm water to the intestine did not affect intestinal tone or intestinal movements.

The action of simple and irritant enemas on the motility of the ileum and jejunum were studied experimentally by Carlson and Orr(12) by recording the contractions of the intestine by means of a rubber balloon before, during and after the enemas were given. No increase of motility of either the jejunum or the ileum was noted except with hypertonic solutions of sodium chloride. Clinical experiments have not been made with enemas of hypertonic solutions of sodium chloride.

The suggestion that the enemas commonly used are active in relieving abdominal distention by reflex action on the small intestine was not supported by this study. Enemas as usually given should be depended on only to aid in emptying the colon.

Stewart-Wallace(13) has reported a case of a rare complication suitably called "progressive postoperative gangrene of the skin." Only one other case has been recorded in England, but he collected and reviewed 37 other cases from the literature.

The most characteristic features were: Its occurrence usually after drainage of an appendix abscess or emypema; the slow but steadily progressive spread; the involvement of superficial tissues only; the raised, oedematous, undermined and exquisitely tender edges; the relatively healthy base of red granulation tissue; the healing of the original sinus; the extensive area involved unless checked; and its failure to respond to any non-operative therapeutic measures.

Treatment consisted in early recognition and excision of the entire lesion; or if first seen in later stages, of excision of the advancing edges with cautery. The results were immediate and gratifying.

Bacteriological experiments have suggested that it is due to the synergistic activity of a symbiosis of a micro-aerophilic streptococcus present in the pleural or peritoneal exudate and a nonspecific staphylococcus introduced from without. Tension sutures appeared to play a part in the establishment of the infection. Cutaneous hypersensitivity (similar to the Arthus phenomenon) may be an important etiological factor.

The condition was rare in England. Failure to recognize and treat it surgically may lead to months or even years of pain and suffering or to death of the patient.

## GYNECOLOGY

Frank(14) has re-described the so-called Manchester operation for prolapse. A triangular denudation of the bladder is made. The cervix is then raised up toward the symphysis and the incisions united behind the cervix. Within this delimitation the flap of vaginal mucosa is removed, laying bare the base of the bladder and the pubocervical tissues. The bladder is then elevated. The pubocervical tissues of each side are caught in a chromic suture and divided between portio and bladder. This exposes the uterine vessels which are then tied at the level just above the site selected for transverse cervical amputation.

The flap posteriorly is readily reflected downward from the cervix from two to three inches by blunt dissection, and, if the culdesac is low, the peritoneal reflexion is likewise mobilized and pushed away or not infrequently either advertently or inadvertently opened. If thus opened, the enterocele sac should be completely mobilized and closed by a purse-string suture placed high and including the posterior surface of the uterus. The cervix is then amputated.

After hemostasis, the entire large gap resulting from the denudation and amputation is readily closed by four sutures. The lateral sutures are first placed. They enter the mucosa of the lateral fornix at least 1 or 0.5 inch from the edge, penetrate the base of the parametrium and enter through the substance of the cervix to appear in the cervical canal. The suture then returns superficially, grasps the mucosa close to its edge. re-enters the cervical canal and retroverses the tissues in a reverse fashion, ending about 1 inch below the beginning of the suture. An identical type of suture is placed through the posterior fornix, taking in the posterior parametrium and the insertions of the uterosacral ligaments. The aterior suture is of the same type. It begins on the patient's left side, well above and lateral to the cervical stump. The mucosa is pierced at least 1 inch from its edge. The suture then passes through the severed portion of the pubocervical tissues and penetrates the cervix close to the median line, appearing through the canal. It then passes through the vaginal mucosa close to the edge on the same side at which it was started, then does the same thing in reverse order on the opposite side.

When these sutures are tied, the cervix is entirely covered by mucous membrane. When there is a large cystocele, a few intermediate sutures should approximate the pubocervical tissues to the anterior wall of the uterus. A few deep intermediate sutures join the pubocervical tissues to prevent the bladder from descending. The mucosa is then closed. A strip of gauze is carried into the cervical canal and the operation is completed by a thorough colporrhaphy.

Excellent diagrams are shown in the article which illustrate the various steps of the operation.

In only a single instance in the 106 cases so operated has there been a descent of the cervix, which appeared firmly but not too rigidly fixed in a high position.

## MISCELLANEOUS

Adson and Brown were the first to section the anterior nerve roots from the 6th thoracic to the 2nd lumbar segment for hypertension. Page and Heuer(15) have recently successfully performed this operation in a young girl suffering from persistent elevated arterial blood pressure. Following the operation anatomical and physiological evidence indicated that her vascular system was yet flexible. The blood pressure level quickly fell to normal and has remained so for the seven months following the operation.

Denervation of the kidneys resulting from the operation did not alter their power to excrete urea, but there was slight loss in ability to concentrate urine. The kidneys were as efficient when the blood pressure was reduced to normal as when it had been elevated.

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# DR. JOSEPH N. McCORMACK OF KENTUCKY AND UNITED STATES OF AMERICA

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The more one studies into the field of medicine the more he is enthralled by the thought that it is not only a wonderful domain but he is astounded at its limitless subject of study. The art of healing human beings starts from the earliest efforts of civilization, nay of the uncivilized. There are in its study the profoundest questions of philosophy, the most complicated problems of science, the researches of infinitesimal matter, and the complications of chemical activities.

Along with these intricate questions there are also the social problems of medicine, the adjustments of the science of healing to the needs of the human beings and the political, moral and even religious relationship. Could there be then any more extensive or interesting study than this greatest of all sciences, Medicine? It is not a simple science. It is a composite one that involves parts of almost all sciences, philosophies and human history. You naturally see, therefore, that to expound this field would require volumes of almost endless variety.

Out of this endless variety I have selected for this paper a little chapter from the American Medical History of this twentieth century and shall center it around a personality named Dr. Joseph Nathaniel McCormack, of Irish ancestry, who was born and died in the Blue Grass state of Kentucky.

His life span began when the American Medical Association was started in 1847 and ended in a restful sleep on May 4, 1922.

I was attracted to the study of this Kentucky Doctor when carrying on somewhat of a detailed research in the progress of medicine in our country since 1900. One is struck when he studies this period by several very prominent phenomena in medicine. He reads of the standardizing and improving the medical education, of the growth of hospitalization, of the organizing of the medical profession in its unified and specialized parts, of the extermination of quacks and quackery, of the development of health laws and sanitation, of the rise of great centers for medical investigation like the Rockefeller and Carnegie Foundations. When all these developments are noted one naturally endeavors to answer the question, where was the motive power that brought all these great movements about.

In searching the answer to this question I discovered this Kentucky doctor and in following his almost ceaseless activities I found the answer to the larger part of these questions.

As a boy he was reared in a large family on a Kentucky farm working with might and main to feed and clothe the family. His ambition was to be a doctor. With a meager schooling he became like Lincoln, largely self taught.

At the age of twenty-three he graduated at the Miami Medical College in Cincinnati and began practice in the country district of Nelson county among the Irish families who became such admirers of the young doctor that they never relaxed their friendship.

At twenty-nine he opened up a wider practice at Bowling Green. Three years later there occurred one of those fortunate opportunities that caused the current of his ambition to surge in the definite direction that brought his ability to its maximum and made his reputation later known throughout the entire country.

In 1879 there was dedicated at Danville, Kentucky, a statue erected by the doctors of that state to the memory of Dr. Ephram McDowell, famous for the first operation in science for ovary tumor in 1817. Dr. Samuel Gross of Philadelphia delivered the oration and emphasized the thesis that the great development in medicine was to take place in the field of Preventive Medicine and Sanitation. This thought so impressed Dr. McCormack at that time that he determined to make that immense field his specialty.

Now to have sanitation it is necessary to have some laws to control individuals and communities for it is vastly different from the individual's effort to rid himself of disease. At that time Kentucky, like every other state, had no laws on the statute books that controlled the activities of localities regarding sanitation and the prevention of contagion. Epidemics of yellow fever, cholera, typhoid fever and other preventable diseases came and went in their regular seasons, practically nothing was ever done to prevent their recurrence.

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Dr. McCormack realized this want and set to work to have the first law written on the statute books to control water supply, purification of the water systems, quarantine and other necessary public safety regulations. There was created the state Board of Health. He became its secretary in 1882 and for thirty years stayed in the same office working unceasingly with great skill, tact and ingenuity to add new laws, built almost entirely by the tireless efforts of the secretary, Dr. McCormack. It is recorded that he visited every session of the state legislature during all these years and himself wrote the bills that perfected the model system.

But the doctor realized that to get good health laws he must get back of the Board of Health, the intelligent and enthusiastic support of the medical profession, and so he started to rejuvinate the weak medical society of the state by organizing effectively the county societies and from these securing delegates to take active part in the state society. His skill, tact and energy accomplished this and unified the doctors of the state for preventive medicine.

Then along with this he undertook to rid the profession and the public of the quack, the charlatan and the ignorant practitioner. In those days Louisville was sort of a rendezvous for the diploma mill school. Sixteen medical schools were located there and more men were graduated to doctor than in any other city of the country.

McCormack started in to control these and was succeeding masterfully when a new and greater field presented itself. He realized that the education of the future doctors would have to be controlled throughout the nation if Kentucky was to be protected. The only avenue by which it seemed possible to his incisive mind was through the American Medical Association, which had been in existence for over fifty years, having been started under the inspiration of Dr. Nathan Davis in 1847 to raise the standard of American medicine and to improve the institutions that taught that subject. It had met year after year, passed resolutions, appointed committees, held special conventions and talked and discussed the topic for those 53 years, but the situation had grown worse, the growth of the country had brought an immense increase in proprietary schools, quacks roamed the land in caravans and the public was deluged by nostrums of every color and kind. The year 1900, the dawn of the new century, was most propitious for the launching of the progressive reform movement. The leaders of the American Medical Association had been changed. They felt that the opportunity had come for that body to appeal to the mass of doctors throughout the country in a way that had never before been done. There was published by this organization a good scientific weekly called the *Journal* but it had a circulation of only about 12,000 and it was but slightly read by the profession. A new editor by the name of Dr. George H. Simmons from Nebraska had taken over the editorship in 1899 and his ability had begun to show itself and he with other progressives like Dr. McCormack of Ky., Dr. Keen of Pa., and Dr. Reed of Cincinnati, Ohio, determined to lead a forward movement to replace the old constitution with a more workable one that would eliminate the do nothingness that existed in the affairs of the association for the half century of its history.

The progress in organization and law making that had developed in Kentucky under the inspiring leadership of Dr. McCormack and his state board of health had become nationally known and so the good fortune came to him and the association to make use of his legal mind to formulate a new constitution.

In 1900 Pres. Reed of Cincinnati, who knew of the Kentucky organization by contact, appointed the celebrated committee on Reorganization, consisting of Drs. McCormack, Simmons, and Forshay of Cleveland. "History," Dr. Reed says, "will never record the labors of that committee, especially the labors of Dr. McCormack, during the ensuing year. I, as ex-officio member of the committee, happen to know of both. The numerous and long journeys; the frequent and prolonged conferences; the careful preparation of tentatives; their patient consideration, frequent amendment and occasional abandonment for others; and so on until the perfected instrument was ready for consideration at St. Paul. There McCormack displayed his always splendid generalship—the generalship of an open field and a fair fight. He met the opposition that was at once interested, strong and entrenched. It was his policy to fight out all differences in committee before the final contest in general session. Every opponent was given a chance to state his objection, but every reason back of each objection was successfully controverted by McCormack. The net result was that one leader of the opposition made the motion to adopt, another seconded it and the whole revolutionary document went through with a whirl; a long and acrimonious controversy was ended; an era of genuine good fellowship was inaugurated.

"The constitution reported by McCormack and adopted without change by the association embraced a few cardinal features: (1) The segregation of the legislative and executive functions from the scientific proceedings, (2) the creation of the House of Delegates as a unicameral legislative body, (3) the decentralization of authority by a choice of delegates on a per capita basis by the state association, with (4) all members of state association, which were made an integral part of the national body; (5) the development of county societies as the ultimate unit of organization under their respective state associations, with (6) all members of state associations becoming fee paying subscribers to the *Journal*. It was McCormack's policy, it was the policy of all who were privileged to work with him, the policy of the whole association at the time, first, that every eligible member of the profession should be brought within the fold; second, that, under and by virtue of the constitution, the association as such, through its properly constituted but always controlled agencies, would determine its own personnel, control its own assets and determine its own policies; third, that its *Journal,* its one revenue earning asset, should be developed primarily for the prompt and wide dissemination of scientific knowledge among the members and secondarily for the no less important function of conserving the social, political and civic interests of the profession; and, fourth, by these means bring the beneficient resources of medical science to bear on the cure of disease, the maintenance of health and the promotion of the welfare and happiness of all the people.

"The association, like a ship just off dry dock, its barnacles all gone, with a new approved chart, started on a fair voyage. McCormack declined to recognize his own task as completed when his report, the constitution, had been adopted. With the enthusiasm characteristic of him, he fairly jumped at the actual task of bringing all eligibles in the United States into the fold through the magic of the spoken word. He personally went from state to state, often county to county, and, with magnetic personality and eloquent appeal, succeeded even beyond his most sanguine expectations. The *Journal* at once leaped from considerably under ten thousand to considerably over sixty thousand subscribers; now, I believe, to something over eighty-five thousand. Its revenues, derived from your dues and from some independent subscribers but chiefly from its greatly enhanced advertising patronage at greatly advanced rates, made it one of the most valuable properties in the journalistic world. Land was purchased, buildings were erected, rented quarters were abandoned, new and efficient machinery was installed, while healthy surpluses were invested in safe securities. Such was the magic of organization; such were the fruits of McCormack's labors."

This twelve years of missionary work from 1901 through 1912 was a wonderful one for the reorganization of the medical societies of the entire country. State after state created new societies or revived sleeping ones all under the leadership of this magician from Kentucky who as Whitefield in the 18th century caused the great awakening in religion, so now Dr. McCormack by the magic of his speech, the persuasion of his ideas reawakened in medicine a feeling of a new social duty, of new organization. One needs only to read the newspaper comments about Dr. McCormack's address in every corner of the land to realize that his great message that he entitled "The New Gospel of Health and Long Life" was truly a great gospel both to the medical profession of the country and the laity as well, for his theory was that absorbed from Dr. Grosse's address in 1879, that doctors and the people should cooperate to prevent disease more than to cure it.

One needs only to read the medical records of that period to recognize the vast influence of that great doctor from Kentucky. Not only were new state and county medical societies organized but almost every state established a medical magazine modeled after the *Journal* in which could be carried on the aggressive campaigns for public health, welfare and needed laws to uphold their theories. This was the epoch of new law making for health, of new hospitals, new institutions to investigate the causes of diseases and the reforming of the medical education of the country. And the credit must be given to the great personality of our doctor.

But let us now turn and see what the Reorganization Committee did for the American Medical Association. The new constitution adopted at St. Paul under the masterful generalship of Dr. McCormack was patterned after the Kentucky system that he had led the physicians of that state to adopt some years before. The County

Association was the unit and delegates from those were made the unicameral legislative business part of the association. In the American Medical Association the unit was mainly the state association from which came a select number of leading doctors to meet together as a House of Delegates to control the affairs of the national association. In the creation of this body Dr. McCormack deserted considerably the earlier democratic philosophy of the association in favor of a republican organization limited to about 175 members so apportioned that all sections of the country were represented. This did away with the unending talkfest that had dissipated the time and energies of the past meetings for the long fifty-three years.

This new representative body started in almost at once to develop some definite policies that would apply the ideals of the great reformer to upbuilding the medical profession of the country.

First of all it was decided to maintain Dr. McCormack's committee on reorganization and to send the chairman to the corners of our country to inspire and arouse the sleepiness of the medical fraternity and point the way to the great opportunities of unified action against disease particularly to introduce the ways of Preventive Medicine. Then too, there was organized a standing committee that was to campaign by literature and lectures the dissemination of health knowledge in such a simple way that all parts of the laity would learn to cooperate in improving the sanitary and health conditions of every nook and cranny of our land. This is known as the Council of Health and Public Instruction. Dr. McCormack held a prominent place in its affairs till he retired from the association's work in 1913. Today this council can show a record of almost untold benefits to the public. The doctor's great faith in the education of the public in sanitation made this council his great favorite.

But in 1904 the House of Delegates decided upon the solution of the ever vexing problem of elevating the medical teaching and licentiate requirements that was the purpose of the first meeting of the association in Philadelphia in 1847.

The campaign was started by the speech of the President, Dr. Billings of Chicago, at the New Orleans meeting. He showed the absurdly deplorable condition in the educational organization of a vast number of the medical institutions and proposed that the House of Delegates establish a permanent Council on Education who should follow the slogan "Fewer and Better Medical Schools." There immediately began an investigation of every medical school of the country and through the power of publicity in the *Journal* every one of them was brought into the light of day and if they were well conducted the public and profession knew it and if they were poorly conducted they had to feel the urge to reform or else consolidate with some competitive school. Then came the cooperation of the Carnegie Foundation in a tour of inspection of the medical colleges of the country. After a few years the 166 schools of the land were reduced to less than 80 and every one of them was raised to a uniform standard of proficiency. As the hospitals were developed, this same council undertook the inspection and grading of these institutions that the public health might be the better preserved, faking combined with quackery obviated.

When the American Medical Association saw what could be done by publicity in the domain of education they turned their attention to the accurate and scientific study of drugs through a department called the Council of Pharmacy and Chemistry. There was established in Chicago a thoroughly equipped laboratory where all drugs and chemicals might be carefully studied that the imperfect and adulterated might be made known to the public and profession.

Along with this has been the campaign against the innumerable nostrums and patent medicines that infested the world of healing in America for long decades. How well they did this may be judged by the fact that only a very few of the many hundreds that formerly existed are now found on the druggist's shelves.

That the medical world and the public have greatly benefited by this reorganized and more powerful medical association is beyond question. Where before 1900 the membership of the American Medical Association numbered a few hundred and the meetings were attended by a few score today the active "fellows" reach over 40,000. The *Journal* grew from the old circulation of 12,000 to nearly 100,000. The assets of the organization have passed the million mark and its activities cover almost every department of medicine.

Naturally the growth of such an institution as this would develop a group of medical politicians that have the narrow traits of all politicians and are to be criticized for their narrowness and viciously selfish policies.

It is to be greatly hoped that the old spirit of unselfish devotion of our Kentucky doctor to the highest ideals of medicine will survive in all the efforts of this, the greatest and most powerful American association that he served so unselfishly through the active years of his life.

It may be stated in closing that some dissensions have arisen in the ranks of the medical men of our country and has led to the formation of several specialized medical organizations like the American College of Surgeons and others. The leaders in most of these cases became dissatisfied with the managers in the American Medical Association and furthermore, desired to have somewhat more selective membership akin to that found in the various Royal Colleges of England. However, in spite of troubles and dissensions the American Medical Association stands today the great leading organization of the American doctors and its place of high reputation, growth and prestige is very largely the result of the efforts of Dr. Joseph Nathaniel McCormack who back in 1879 decided to use his marvelous talents in the field of Preventive Medicine and succeeded beyond all expectations.

After studying such a character as Dr. McCormack one is convinced that his name should be enrolled among the great in American medicine, not as a practitioner, scientist or surgeon, but as a great organizer who perfected the plans in the great field of Sanitation and Public Health.

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## CONSERVATIVE TREATMENT OF LATE TOXEMIAS OF PREGNANCY, WITH ESPECIAL REFERENCE TO THE INTRAVENOUS USE OF MAGNESIUM SULPHATE

Lyle G. McNeile, Los Angeles (*Journal A. M. A.*, Aug. 25, 1934), supplements a previous report on the intravenous use of magnesium sulphate in the care and treatment of preeclampsia and eclampsia, which gave the results of treatment in forty-five severely preeclamptic patients and 103 eclamptic patients. The mortality among the eclamptic patients was 14.8 per cent, and only six of the forty-five patients with preeclampsia developed convulsions. The author gives the conditions indicating the necessity for treatment as a sustained rise in the systolic blood pressure to 135 mm. of mercury or over, albuminuria, edema, headache, visual disturbances and epigastric pain. Considerable difference of opinion exists as to the limitations of conservative treatment. The author is of the same opinion as Plass that: "At present, there can be no question but that the regular treatment for eclampsia should be conservative, with radical surgical procedures reserved for the unusual cases with complications which themselves afford indications for operative delivery." While the treatment given in the author's clinic is generally spoken of as the magnesium sulphate treatment for eclampsia, he has never regarded the intravenous injection of magnesium sulphate as more than a valuable adjunct in the commonly accepted conservative treatment of toxemia. He has used magnesium sulphate intravenously in eclampsia for eighteen years, during ten years of which it has been in routine use at the Los Angeles County General Hospital. The present report includes 540 preeclamptic patients, of whom thirty-five developed convulsions (6.41 per cent), and 259 patients with convulsive toxemias treated with magnesium sulphate. The report is a compilation of the reports of Lazard. McNeile and Vruwink and Yazard, Irwin and Vruwink, as well as a summary of the results obtained from November 1932 to April 16, 1934. The four deaths occurring in the more recent group were apparently due to eclampsia. In the recent series of thirty-four patients with eclampsia the infant mortality was 31.42 per cent. The author states that the entire credit for the reduction in maternal mortality which resulted from late toxemias of pregnancy cannot be attributed to the use of intravenous magnesium sulphate. The effect of eliminating radical surgery, except when clearly indicated, has been thoroughly demonstrated. Regardless of the controversy as to the exact interpretation of clinical and laboratory data, the use of carbohydrates in the treatment of toxemias of pregnancy has been the basis for the successful treatment of many severely sick patients. The favorable effect of maintaining a proper water balance in toxic patients is generally recognized. It is not my intention to give the impression that I regard the intravenous use of magnesium sulphate as any more than an extremely valuable adjunct to the commonly accepted conservative treatment. During the eighteen years in which he used magnesium sulphate intravenously he believes that he has clinically demonstrated the safety of the procedure, and its effectiveness in allaying restlessness, controlling the convulsions of eclampsia and increasing the urinary output. In a large portion of patients there is an immediate and surprising improvement in the general toxic symptoms.

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Patient: "Doctor, I feel like killing myself. What shall I do?"

Doctor: "Just leave it to me."

# The Nebraska State Medical Journal

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## CANCER SURVEY IN NEBRASKA

The cancer survey of Nebraska made by Dr. Frank L. Rector, Field Representative of the American Society for the Control of Cancer, released the first of this year, deserves infinitely more attention than it has so far received. It is a 90 page, reproduced typewritten volume of letterhead size, bound in flexible paper cover. The edition is necessarily limited and the volume is, therefore, not available for general distribution, which is cause for regret.

At the annual meeting of the Nebraska State Medical Association in 1933 the House of Delegates, by motion, requested the American Society for the Control of Cancer to make a survey of Nebraska and the work done was in response to that request.

Cancer in 1930 ranked second as a cause of death while in 1900 it was sixth. "Cancer caused 11% of all deaths in Nebraska in 1932." "The number of cancer deaths in Nebraska has shown a marked and steady increase." "In 1920 the cancer death rate was 75.4% per 100,000. In 1932 it was 102.5% per 100,000. During the decade 1920-1930 there was an increase of total population of 6.3% and an increase of 3.7% in the population of thirty years of age and over. During this same decade cancer deaths increased 47% and the cancer death rate increased 38.3%. It is thus seen that the cancer death rate increased more than six times as much as did the total population age thirty and over during this same period."

"The contribution which official health agencies can make toward the control of cancer rests on their ability to bring to the public known facts about the preventability and curability of the disease. The significance of conditions now recognized as precancerous and the importance of early signs and symptoms might well be stressed in health department publications and in official utterances by their personnel."

"There is a known total of 1091 milligrams of radium in the state." "It has been estimated by cancer authorities that two grams of radium should be available for each million of population, or for each 1000 deaths from the disease. On this bases there should be available an additional 1500 milligrams or more of radium in Nebraska."

"Tumor clinics organized in keeping with the recommendations of the American College of Surgeons were found in St. Joseph's hospital, Omaha, and St. Catharine's hospital, Omaha. A similar clinic is being organized in Lincoln General hospital, Lincoln. The organization of special tumor clinics is being discussed in other hospitals."

"Treatment of cancer along lines that are considered adequate requires special facilities, equipment and training."

"The public should be taught to focus attention on the beginning of cancer rather than on the end. The public and medical profession should become familiar with the signs and symptoms, the danger signals of early cancer." "These are:

"A lump that persists in any part of the body, particularly in a woman's breast.

"A sore, especially about the face or buccal cavity, that does not heal within the normal healing period.

"An unnatural bloodstained discharge from a natural body orifice, particularly vagina, bladder or rectum.

"Change in size or color of warts or moles.

"Persistent indigestion with loss of weight."

"While it does not come within the scope of this report to evaluate the training of pathologists properly to evaluate cancer tissues it may well point out that special training and considerable experience are necessary to competency in this field."

"The use of rented radium by untrained physicians is a procedure for which no commendation can be offered."

"It would be a practical and logical thing for the Nebraska State Medical Association, the State Department of Health, and the State Committee of the American Association for the Control of Cancer to cooperate in a state wide educational program. This would provide for Nebraska an improved service for all cancer patients within the state. It would educate physicians in acceptable clinical procedure and would provide the public with factual information about the disease."

One is tempted to continue to quote; but sufficient has been given above to show the value of the survey. We can only hope that before long it may be possible to publish the survey for the benefit of the entire profession.

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## THE A. M. A. MEETING AT ATLANTIC CITY

The joint meeting of the American Medical Association and the Canadian Medical Association at Atlantic City was the outstanding medical association event of all time. Over eight thousand physicians registered of which number undoubtedly one thousand must have been Canadian.

So impressed with the event were the Canadians that they extended an invitation to the American Medical Association for a joint meeting in Canada within five years.

Dr. J. Tate Mason, Seattle surgeon, was elected president-elect, a handsome recognition of the growing medical importance of the northwest.

It is difficult to give a complete digest of the proceedings of such an organization as the American Medical Association, but we herewith present the reactions of several contemporary journals.

*Northwest Medicine*: Meetings of the American Medical Association are always rather overwhelming, in that there is so much going on in so many different places that one can only participate in a small part of it. The scientific exhibits this year were excellent and probably no feature of the meeting was more interesting. Nothing that took place at Atlantic City was of as much general interest to the profession as what stand the House of Delegates would take on economic problems. The House had gone on record as being very definitely opposed to any form of national or state health insurance at a special meeting in Chicago in February, 1935, and no change in that attitude was even considered. The Bureau on Economics reported that there are now in operation over 200 local bureaus for the care of the low income brackets of people. They had information concerning all these plans, but had no plan to offer as a substitute for the present system of the practice of medicine. However, they would gladly give advice and information to any local society that wanted to set up an organization for the care of the lower income groups of people.

*New York State Journal of Medicine*: The scientific conventions are useful because they serve to summarize the important developments and permit an opportunity to evaluate them. The papers presented at the scientific sessions and the great scientific exhibit promoted these objectives. To listen to the comment current among the physicians in attendance it would seem that the scientific exhibit was taking a more important place in their estimation of the scientific sessions. Here the clinician and the research worker come together in the true sense of the word, and in a totally informal way they discuss the problems interesting them, and both leave with ideas clarified and with a better comprehension of relative limitations, and an added mutual respect for each other's fields of endeavor.

The concern of the A. M. A. with the social aspects of medicine is natural. This great body of physicians attunes itself to community sentiment. It has declared itself against compulsory health insurance and against socialized medicine in general. The reasons which prompt this stand have been detailed too often to need repetition here. On the other hand, just as our State Society has done, the A. M. A. has declared its willingness to co-operate in suggesting how medical service can be provided for those who find themselves confronted with financial barriers which prevent them from procuring adequate medical services. Today medicine is the outstanding social science. As such, the A. M. A. is taking its rightful place in guiding and directing this important service to the American people.

Nebraska physicians registered at the Atlantic

City meeting of the American Medical Association, June 10-14, 1935:

B. F. Bailey, Lincoln; R. Russell Best, Omaha; A. E. Bennett, Omaha; J. Dewey Bisgard, Omaha; S. J. Carnazzo, Omaha; Arthur R. Everett, Kimball; Roy W. Fouts, Omaha; Edward R. Hays, Omaha; Fredk. C. Hill, Omaha; J. D. McCarthy, Omaha; H. R. Miner, Falls City; John R. Nilsson, Omaha; B. C. Russum, Omaha; Robert D. Schrock, Omaha; Eugene E. Simmons, Omaha; Arthur M. Smith, Lincoln; Roscoe L. Smith, Lincoln; J. E. M. Thomson, Lincoln; Raymond L. Traynor, Omaha; C. M. Wilhelmi, Omaha; Werner P. Jensen, Omaha; Louis E. Moon, Omaha; Otto A. G. Reinhard, Lincoln; J. R. Taylor, Sidney; Arthur Bruce Walker, Lincoln; W. P. Wherry, Omaha; Floyd A. Clarke, Omaha; William O. Colburn, Lincoln; J. Jay Keegan, Omaha; C. C. Tomlinsen, Omaha. Total 30.

## YOUR PRESIDENT DISCUSSES THE THREAT OF STATE MEDICINE

The Catholic Hospital Association of the United States and Canada requested the president of the Nebraska State Medical Association to address them at the opening session of their recent convention held in Omaha.

Considerable press comment, and later favorable references in the convention, were made of this address, portions of which are herewith quoted because we believe the medical profession of the state should again be reminded of the trend toward state medicine.

"It has been aptly said that the present turmoil of the world is largely the result of various efforts, wise and unwise, to bring under collective control the activities of men which hitherto have been left to individual effort and initiative. Much of our medical muddle comes from confusing the care of the sick and the practice of medicine with the payment for such services. It has long been realized that medical services have a basic personal relationship which cannot be relegated successfully to collectivism, however, the payment for such services possesses no such precious attribute of personal relationship, and, of coures, bills are not medical services. We find ourselves beset by sundry self appointed individuals, or groups, who during the stress of the times have attempted to hoodwink the unfortunate public by presenting various and divers panaceas such as health insurance and socialized medicine, purporting to solve all our troubles, but for a dire lack of premise such efforts are directed entirely at the bill for payment of services, forgetting that for these many years both the hospitals and doctors, in contradistinction to all others, have given service to the poor and rich alike. These fallacies of collectivism, if adopted, would one by one "Hitlerize" our ideals and idealisms, would "goose step" us into political serfdom, and banish into eternal oblivion the basic principles and rights of every individual to select his own doctor and hospital.

"Espousing in common the cause of organized medicine by all of its allied professions, and by unitedly solving our own problems, can save us from regulation from the outside; this must be done if we hope to escape becoming professional pawns and hirelings.

"As conclusive evidence of our trend toward state control of the hospitals of our country we find that during the past five years the growth of American hospitals from 892,000 to 1,027,000 beds has come almost exclusively in government institutions. Today governmental hospitals comprise 28 per cent of the hospitals in the United States and contain 66 per cent of the hospital beds. Private, non-profit hospitals represent 48 per cent of the hospitals, and contain 27 per cent of the hospital beds. The small remainder in each instance represents the proprietary and industrial hospitals. Most of the government hospital beds (76 per cent) are in hospitals for mental and tuberculous patients. Seventy-six per cent of the beds in the private non-profit, or voluntary hospitals, are in general hospitals which care for patients with acute medical and surgical conditions.

"The number of patients in all hospitals has risen during the depression. In 1929 the average daily census was 726,766; in 1933 it was 801,271. Although governmental hospital beds were increased during that period by nearly 112,000, governmental hospitals were 88.9 per cent filled in 1929; 90.1 per cent in 1933. Individual government institutions are jammed to 125 per cent of their rated capacity. Non-government hospitals, increased by less than 8,000 beds, dropped from an average occupancy of 64.6 per cent in 1929 to 55.3 per cent in 1933.

"The only rational deduction to be made from the foregoing is that we definitely impress upon those who represent us in government, first, the necessity of the government getting out of the hospital business; second, the feasibility of utilizing for our rightful social charges, the already existing institutions, which are ample and adequately equipped to care for such individuals, thus restoring so far as possible to every citizen the inalienable right of choice of his physician and the privilege of being cared for by that physician in the hospital supported by his own community.

"Because our problems, aims and ideals should be synonymous, the medical profession looks to you as a wise and fearless ally, and feels assured that you will, as you have always done. accept the task at hand, and with God's help maintain our stand, and to that end we beg your support and pledge you ours."

It is apparent that the medical profession must themselves, through its own organizations, make every effort to prevent the trends now prevalent through state control and paternalization, of almost every aspect of the daily routine of the physicians life.

—Claude A. Selby.

## RECENT CANCER CONFERENCE IN OMAHA

During the annual meeting of the Catholic Hospital Association in Omaha, Dr. Charles F. Geschickter, from Dr. Bloodgood's Surgical Pathological Laboratory, Johns Hopkins Hospital, Baltimore, Maryland, conducted a two-day cancer conference under the auspices of the Tumor Clinic at St. Joseph's hospital.

Cases were presented from the hospital and the dispensary and after discussion by the staff, microscopic sections of similar cases were shown and discussed by Dr. Geschickter.

In discussing squamous cell carcinoma of the skin, Dr. Geschickter brought out the fact that it is not uncommon about the face, forehead, region of the temples, ears, lip, tongue, mucous membranes of the cheek, larynx and oral cavity where it lies on the surface, but when it occurs on that portion of the body covered by clothing the lesion does not begin on the skin suface but deeply in the skin in the sebaceous ducts and is covered by intact skin.

He also brought out the fact that squamous cell carcinoma in various localities is probably the most common and most fatal type of cancer but if handled properly a great majority of the esions may be cured by irradiation.

The statement that carcinoma of the stomach eads all other forms of cancer in mortality, strictly speaking, is not true. If one considers squamous cell carcinoma in the regions menioned above and then include cervix, sinuses and ronchiogenic carcinoma of the lungs, he will easily have more squamous cell lesions which give rise to cancer and ultimate death than any other form of tumor in the body. Therefore, squamous cell carcinoma is one of the commonest forms of carcinoma, it is usually easy to diagnose grossy, it is easy to get at for a biopsy and is uniformy correctly diagnosed and graded by competent micro-pathologists. Furthermore, it is one of the most successfully treated types of carcinoma as a great majority respond to a proper dose of irradiation or may be handled by a combination of radiation and surgery.

If squamous cell carcinoma involves cartilage or bone by direct invasion it is extremely difficult to eradicate. This type of cancer also metastasizes to the regional lymphatics sometimes quite early, and one is never justified in permitting any delay in the institution of treatment. The average patient with cancer will delay six to eight months before treatment is started and the average doctor will wait four months so the doctor is only one-third less negligent than the patient.

In connection with the etiology of squamous cell carcinoma in exposed portions of the body Dr. Geschickter discussed the carcinogenic portion of coal tar products and several other carcinogenic substances which are closely related chemically to di-benz-anthracene stating that if we add a methyl and an oxide group to this formula we have one of the estrogenic compounds. It has been proved that this type of estrogenic substances which are related to the coal tar products will also produce papillomatous change following trauma and will always thicken and pile up the mucous membrane. It is now believed that the action of sunlight or radiation produces compounds allied to these coal tar derivatives which are responsible for carcinoma on the surface of the skin. We get carcinoma from within due to physiological changes in the secretion within the cell, probably due to endocrine changes, and from without due to substances similar to changed coal tar derivatives. Someone has proved that tobacco has a similar compound so it is possible that the relationship between leukoplakia in its various forms and the use of tobacco may be explained on this basis.

In discussing lipomas Dr. Geschickter brought out the value of transillumination as the lipomata are more translucent than the adjacent tissue and stated that since practically all of them are benign, surgical excision is the treatment of choice.

Summarizing the discussion on the curability of carcinoma of the gastro-intestinal tract, Dr. Geschickter stated that it is still a dark field in cancer therapy. The most hopeful thing about it is the advance which has been made recently in the methods of diagnosis and treatment of carcinoma of the rectum which at the present time show thirty per cent cures.

In discussing tumors of the breast Dr. Geschickter stated that the endocrine influence in this group of tumors was rapidly becoming more thoroughly understood and much good should come in the next few years from our better knowledge of the underlying factors in this group of tumors.

Tumors of the bone, kidney, lung, and testicle were also covered at the meeting but space will not permit any more than the above brief summary.

**—James F. Kelly, Omaha.**

## FACTS ABOUT THE WISCONSIN FOUNDATION

The Foundation was organized on November 14, 1925, under the Wisconsin laws as a corporation not for profit, by a group of alumni of the University of Wisconsin. Organization was precipitated by a series of discussions, over a period of some months, of the problem presented by the perfecting of the Steenbock process of irradiating foods and pharmaceuticals with Vitamin D.

Some years earlier, Dr. Harry Steenbock of the university staff, and his associates, had found that Vitamin D could be introduced into organic matter through exposing this matter to ultraviolet rays, and that certain compounds widely distributed in foods, when activated by these rays, became exceedingly stimulating upon the processes that are responsible for absorption and retention of lime salts in the body. This retention means sound, well-developed bones and teeth.

Dr. Steenbock was express in his wish that there follow no unregulated exploitation of his discovery, that both the public and the reputation of vitamin therapy be protected from unscrupulous commercialization. He appealed to the university, but there were neither funds nor organization to handle the problems arising from patenting and commercializing a scientific process. He then turned to friends, and the suggestion was made by Dean C. S. Slichter, of the university graduate school, that a research foundation be organized.

Thus, in November, 1925, the organization was effected.

## SOME NEBRASKA PIONEER PHYSICIANS: DR. JAMES H. PEABODY

James H. Peabody was born in Washington, D. C., March, 1833, and as a youth was a page in the House of Representatives. He was graduated from the medical school of Georgetown University in 1860.

On the outbreak of the Civil war he was appointed to command of the Marine hospital in St. Louis. In July, 1864, he was made a major and placed in command of the military district of Nebraska with headquarters at Omaha. On the conclusion of the war he spent a year in Bellevue Hospital Medical College, New York, and thereafter, in 1866, located in Omaha to practice.

He acquired a large practice and was in demand for many miles and suffered many hardships in his work owing to bad roads and no roads, swollen streams, etc. He was one of the most popular physicians ever in Omaha.

The Nebraska State Medical Society was organized in his office in May, 1868, and he became its second president.

He was the first delegate of the Nebraska Medical Society to the American Medical Association meeting, in Washington, D. C., in 1870. Dr. Peabody was a frequent contributor to medical literature and read a number of articles before medical societies. He was a contributor to the Medical and Surgical History of the War of the Rebellion. Dr. Peabody died in 1896. A son, Dr. John Dent Peabody, is now living at St. Petersburg, Florida.

The writer met Dr. Peabody in Omaha in the eighties or early nineties and can testify to his graciousness toward, and interest in, the younger men in the profession.

## THE STORY OF QUININE

The first authentic record of the use of quinine was in 1630 when Francisco Lopez de Canizares, Corregidor of the Province of Loxia in southern Peru, was cured of a malarial fever. A few years later, the Countess of Chinchon was cured of a similar infection and in 1639 brought some of the bark to Spain. This was its first appearance in Europe and was called Cinchona in honor of the countess. The bark was not much used until a bit later when the Order of Jesuits introduced it for general use, holding a monopoly in the distribution for many years. It was not until 1735 that the source of the bark was made known by the explorations of the French botanist Charles Marie de la Condamine.

Of the fifty-two varieties of Cinchona, only one contains sufficient quinine in its bark to be of medicinal value. The Indians of Peru realized the stategy of their position. They alone knew the true source of the life-giving bark and no white man was allowed to penetrate into the interior where the bark was gathered.

In 1846, Dr. Weddell obtained a few seeds and actually grew some trees in the Jardin des Plantes in Paris. The climate was not suitable, however, and the trees were curiosities of no practical value. In 1849, a Dutch warship brought cinchon seeds and plants to Java in the hope of starting a commercial plantation. Again the white man met with failure. The Indians, jealously guarding their secret, had cannily sold spurious seed.

A year or two later, an Englishman named Ledger succeed in bribing an Indian and obtained some of the right seed. Upon the discovery of his treachery, the traitorous Indian was put to death by his tribe, but it was too late. Ledger had left the country with his precious burden and the monopoly was broken. The quinine-bearing tree is called Cinchona Ledgeriana in his honor.

Ledger sold half his seeds to the Dutch and half to the English government. Once again the Dutch attempted to establish a plantation on a commercial scale in Java. The English tried the same thing in India but geographical and climatic conditions favored the Dutch. Their success is attested by the fact that today 97% of the world's supply of cinchona comes from the Dutch government plantations in Java. India supplies but 2.5% and all other countries 0.5%.

—Selected.

## AS OTHERS SEE US: STATE MEDICINE

It would help to a better understanding of the denunciation of state medicine which one hears so frequently nowadays from medical socity gatherings if there were in existence a concrete program under this name for reform of the relationship existing between the public and the medical profession:

So far the threat of state medicine lies chiefly in the existence of a condition which seems to make it desirable for want of any other approach to a proper solution. It has been fairly well established by competent authority, based upon exhaustive research, that the public is not getting the benefit from medical science that it might have. The very poor frequently receive solicitous care. The rich and well-to-do are able to pay for adequate protection. But there is a large body of the public in the lower income classes, who see only the devil of charity on the one hand and the deep blue sea of medical service beyond their means on the other.

The existence of this condition has been long felt. It was emphasized by the report of the commission named by President Hoover to study the subject. And it is from the date of this report and as a result of tentative suggestions contained in it that most of the agitation against state medicine dates. What the subject consists of then at the present time is public awareness that something is wrong and numerous undigested notions that something can be done to right it.

State medicine has an ominous sound to the patient as well as to physician. It sounds like more taxes for one thing. And it sounds like possible periodical compulsory medical examination. The independent, self-reliant citizen doesn't like these sounds. But the heading off is more likely to be done by removing the causes which make it a threat than by mere verbal denunciation.

Efforts at independent solution without state interference have been made. Some time ago considerable prominence was given a co-operative venture in which participants were guaranteed adequate medical attention on a modest annual fee rather than a case fee basis.

The experiment was roundly denounced by organized medicine. Pioneer efforts in this direction may not be above criticism, but they deserve most thoughtful attention. It is through something of this kind, which will remove from the small income household the fear of contracting medical costs which it will be unable to pay, that the real bar to outright state medicine will be put up.

—Omaha World-Herald.

## EDITORIAL PARAGRAPHS

More liberal appropriations by the recent legislature make it possible for the University hospital to equip and open for use about forty additional beds.

Dr. Robert D. Schrock, Omaha, served as president of the Orthopedic Section of the American Medical Association at the Atlantic City meeting in June.

Even while discussion is going on questioning the poisonous qualities of the black widow spider (Lactrodactus mactans), a victim of the bite of the black widow was buried at McCook, Nebr.

Ruth Bryan Owen in her *Leaves From My Greenland Diary*, states that at the hospitals in Greenland they serve sprouted beans for their vitamine content to patients with the regular meal.

The insurance department of Nebraska recently notified all fraternal insurance associations that no policy may be issued without a medical examination, contrary to what some organizations had been doing.

The National Catholic Hospital association held its annual meeting in Omaha during the week beginning June 16th, and was attended by more than one thousand persons interested in the work of the association.

A writer in the *New England Journal of Medicine*, June 23, 1935, states that through the operations of German Health Insurance, under Hitler, three thousand physicians were deprived of the privilege of earning a living.

Harry Francke in his *Working North From Patagonia* gives the infirmation that the doctors in Buenos Ayres collect an admission fee at the office door. Not a bad plan and one it might be well to adopt in this country.

On Decoration day the Kentucky State Medical Society dedicated a monument at Danville, Ky., to the late Jane Todd Crawford on whom was performed the first ovariotomy 126 years ago, by Dr. Ephriam McDowell.

The secretary of the Iowa Medical Society announces that 14 counties have a membership of every eligible physician, while 27 counties have a membership of 100% of the 1934 membership or better. Great people, those Iowa doctors.

It appears that we are about to be relieved of at least some of the obnoxious and misleading advertising by radio. The National and Columbia systems are reported to be quietly but consistently elevating the standards of material to be permitted to be broadcast.

Mrs. Ray Tierney underwent an operation at St. Joseph's hospital on Wednesday of last week for the removal of *gorters*. The operation was performed by Dr. Copsey. The patient is getting along nicely and on the road to recovery.—From a Nebraska Country Weekly.

Race suicide is no more to be feared if statistics from Washington is an indication of the recent trend. The birth rate for 1934 was 17.1 per thousand of estimated population while in 1933 the rate was 16.6 per thousand. The rise in the birth rate in 1934 was the first in ten years.

"There must be a closer ethical relationship between individual physicians. This in my opinion is the greatest weakness that exists in organized medicine today. If organized medicine is to have strength there must come into being a true respect for our ethics. We cannot be untrue to one another and have organized strength."—*President Skaggs of the Illinois Medical Society, in Illinois Medical Journal for June.*

*Public Health Reports* for June 7, 1935, contains an interesting study of the typhoid fever epidemic which afflicted the Barnum and Bailey-Ringling Bros. Circus in 1934. The cases occurred between July 22 and August 6. About 140 employees were affected of whom 77 were proved cases of typhoid. The exact source of the infection was not found, but is supposed to have been the water supply — probably sewage contamined—obtained at some western Pennsylvania town.

A new feature was introduced into medical society work—new to this editor, anyway—when retiring President Rix of the Omaha-Douglas County Medical Society, gave an address containing a resume of the work of the society during the past year. It is a fact that the president should be more than an ornament. The address of Doctor Rix was a very creditable production and should be followed by others in this and other societies. It recalls to the membership the work of the year and its importance.

Nothing seems so apropos as the following comment by the lay press, credited to a St. Louis physician: Nurses should not go around at 5 a. m. to awaken patients merely to wash their faces. Five o'clock in the morning is dedicated by nature to the profound slumber that brings recuperation to the ailing as to the well. No one aises at 5 o'clock in the morning save those who do it under compulsion. The nurse might as well sing the old song, "I've just come up to tell you you've two more hours to sleep." A patient may need to greet the newborn day with a clean face, but, unless actually in extremis, he needs the slumber more. Dr. Neilsen is everlastingly right. All in favor of his motion signify by singing the refrain to Harry Lauder's anthem, "It's nice to get up in the morning, but it's nicer to lie abed."

"The 'Brain Trusters' behind the new schemes for the administration of medical service are mostly laymen. They do not know the difference between quinine and condition powders, botts and boils, spavin and sprue. Hence this fog, hence this confusion and these unsound, unsafe medical schemes to take care of the sick. That the shoemaker should stick to his last is sound doctrine. The most dangerous person in the world is he who does not know, and does not know that he does not know. Numerous alphabetical groups are employed to solve our economic problems. The alphabet would not be a starter for the many schemes proposed to cure our ills. From the

American Medical Association comes the statement that more than one hundred fifty plans have been offered. And still the fog grows heavier."—*President Thompson before the Texas State Medical Association*, May 4, 1935.

The experience in Europe with compulsory health insurance, however, shows that it is better in theory than in practice. Panel physicians in England are reported as showing little interest in keeping up to date or doing post-graduate work. They tend to become superficial in diagnosis and show a lack of personal interest in their patients. It encourages a tendency to report illness in order to obtain money. It encourages undue prolongation of convalescence from trivial illness. Physicians find it difficult to deal honestly with both patient and insurance fund. If the physician feels that the applicant is not really in need of sick benefits, that he is able to work, or should return to work before he chooses to do so, he is apt to arouse resentment and in time will find an empty waiting room. Patients who find their doctor helping put something over on the insurance companies lose confidence in his competence and integrity and are apt to seek other advice in times of stress. The whole purpose of the insurance plan is thereby defeated. —*A. S. Rider, President-Elect, South Medical Society.*

## OBITUARY

**Harry C. Miller,** Omaha; Creighton University, School of Medicine, Omaha, 1917; promising young surgeon; member, Nebraska State Medical Association; ill for several years; died, aged about forty-seven years, June 19, 1935, aboard ship while on a trip through the Panama canal. Burial in Omaha, July 6th, 1935.

**James I. Allen,** Oshkosh, Nebr.; College of Physicians and Surgeons, Keokuk, 1890; died July 4, 1935, aged about seventy-three years.

**William H. Stoakes,** Albion, Nebr., (retired); Homeopathic Medical Department Iowa State University, date unknown; in early life in practice at Bradgate and Humboldt, Iowa, before locating at Albion, Nebr., died June 28, 1935, aged about eighty-two years.

## AUXILIARY NEWS NOTES

"They challenge us.
Who challenges us?
The generation yet unborn."

"Let us work with and through clubs and organizations in which we hold membership to control the type of health talks arranged for their yearly programs." —Mrs. J. Newton Hunsberger.

The subscription income for Hygeia increased by $30,000 in 1934. It is being adopted as a textbook on health in many of the public schools and is being widely read and quoted by the general public. These gratifying results are due in part to the efforts of auxiliary Hygeia chairmen.

The auxiliary was requested by the American Medical Association to cooperate in this work when it passed the following resolution at the Philadelphia convention in 1931:

Whereas, the periodical Hygeia, the Health Magazine, published by the American Medical Association, is the only authentic health periodical available in this country; and

Whereas, this periodical was established by the Board of Trustees on recommendation of the House of Delegates to be the official voice of American Medical Association in educating the public in matters of health; and

Whereas, it is the best medium for reaching the teachers of the young, and the pupils in schools throughout the country, informing them of the progress of medical science and of scientific means for the prevention of diseases; therefore, be it

Resolved, That the House of Delegates urge the Woman's Auxiliary of the American Medical Association, including the county, state, and national organizations, to recognize as one of its chief activities the promotion of the distribution of this publication through parent-teachers' associations, boards of education and similar bodies, interested in education.

—Mrs. A. P. Overgaard, Publicity Chairman.

## DIPHTHERIA

(A paper by Mrs. H. E. Gerald read at the April meeting of the Auxiliary to the Douglas County Medical Society.)

Diphtheria is an acute infectious fever caused by the Klebs-Loeffler bacillus, so-called from the two men, Klebs and Loeffler, who discovered the bacillus causing this disease. The name diphtheria was given to it by a man named Bretonneau in 1821. As long ago as the Homeric period in Grecian history evidences of this disease have been traced. It is now claimed that Napoleon and Washington died of this disease.

Diphtheria is characterized by inflammation of the mucous membranes, and general toxemia caused by the absorption of the toxic poisons throughout the system. These lesions may appear on any mucous membrane of the body, but are usually localized on the mucous membranes of the throat. The tonsils serve as an excellent residence for these germs as the crypts of the tonsil contain material upon which the bacilli may live and also provides the two essentials for their growth, namely, heat and moisture.

This inflammation of the mucous membranes is characterized by an exudation which is thrown out, causing a necrosis of the superficial layers of tissue, resulting in the formation of a false or pseudo-membrane. This membrane is at first gray but turns to a dirty brown and cannot be removed without leaving a raw bleeding surface.

This membrane may grow over the opening of the throat, thus causing choking, and before the days of antitoxin intubation was employed to a considerable extent. This consisted of inserting a small tube into the throat of the patient. After the intubation came the problem of feeding, as particles of food may enter the larynx, causing severe paroxysms of coughing which very often caused expulsion of the tube.

The incubation period, or time between exposure and the onset of the disease is from two to ten days. The disease usually lasts about ten days and may be followed by severe complications. Pneumonia is a very common complication, the kidneys may be affected and Bright's disease develop, and the heart seems to be particularly affected by the toxins of diphtheria. The most important sequellae are the degenerations of nerves accompanied by paralyses.

This usually occurs two to three weeks after the convalescence has begun.

Diphtheria is very contagious; the germs being expelled from the nose and throat. These germs either settle upon some object or person to be either picked up and carried away or breathed in, and thus may be given to another individual.

Toxic bacilli are often found in healthy throats of persons who have been in contact with the disease or with carriers of the disease, without contracting the disease themselves. Even after a patient has recovered from the disease the germ may be present for some time. Cases have been known to carry the germ in their throat eight months. It has been estimated that 5% carry the bacilli for two months, 2%, three months, and 1% are chronic carriers. These bacilli may sometimes be so hidden in the crypts of the tonsil as to be undetected by cultures.

Some people, 10% it is estimated, have a natural immunity to this disease. The age of the greatest susceptibility is from 6 months to six years, especially from 2 years onward. After the 10th year the susceptibility decreases.

There has recently been discovered a method of finding out the immunity of an individual to this disease. By using the Schick test, which is a simple vaccination, it can be determined if a person will contract the disease upon exposure.

Up until 1894 there was no means of combating this disease. It was a case of waiting for the outcome, and watching the patient struggle for breath. Then came antitoxin which revolutionized the treatment. As soon as the serum was injected a marked improvement took place; within a few hours the membrane began to dissolve, the temperature dropped, and the toxic conditions started to improve. Between 1894 and 1920 the use of antitoxin cut the death rate in one district from 100 to 15 for every 100,000 people.

Since the discovery of the Schick test it is possible to use preventive measures. One does not need to wait until the patient has the disease and then give antitoxin. By giving an immunizing agent to a susceptible case the patient is rendered immune.

This immunizing agent is either toxin-antitoxin or toxoid. At present it is found that the alum precipitated toxoid is the most effective as it renders an immunity after one dose, whereas it takes three doses, a week apart, of the toxin-antitoxin.

Dr. W. H. Parks, who is our leading authority on diphtheria immunization, began the use of alum precipitated toxoid in the New York Public Schools in February, 1934, and found that one dose conferred immunity in 95% of the susceptible children.

Dr. Walker in Alabama used it on 135 infants from 6 to 18 months of age. All reacted favorably and, being given the Schick test in 2 to 6 months, all had a negative reaction. In children over 2 years of age there will be a more marked local disturbance.

The immunization of the child of 5 to 9 or 10 to 14 will produce no material effect on the prevention of diphtheria. It is on the child under 5, or pre-school child, that our efforts must be based.

In Chicago a very marked and rapid reduction of the diphtheria death and case rate was brought about by inoculating more than 90% of the pre-school children with alum precipitated toxoid. To maintain this record and keep down the future cases efforts are being stressed to inoculate as many babies that are born every year as soon as they reach 6 months of age.

In the states of Massachusetts and New York, toxoids are furnished by the state and given free of charge to the physician.

It is very important that case records be kept, as that is the only way a check can be made upon the progress of immunizing the children and the result obtained.

A recent article by Dr. Bundesson in the American Journal of Public Health gives the high points necessary for conducting such an immunizing campaign in a community:

1. Records should be kept and a constant use of the files containing an up-to-the-minute list of names and addresses of all pre-school children.

2. Use of alum precipitated toxoid produces higher degree of immunity. In 100%, given 2 injections of toxoid at weekly intervals, negative Schick test was obtained in 6 months.

3. Repeated presonal contact and home calls, by public health nurse to urge and sell the idea of immunizing.

4. Traveling health centers which took health centers to the child when that child did not come to the welfare station.

5. Campaign of Catholic Church which aided materially in overcoming resistance of foreign born.

6. Cooperation of the medical profession.

7. Educational appeal through bulletins, posters, letters, radio, and newspapers.

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## TUBERCULOSIS ABSTRACTS

### TUBERCULOSIS IN THE CHILD

Many physicians think that all children are infected, and that so-called "tuberculous infection" may be disregarded unless "tuberculous disease" supervenes. This is a most dangerous view and often leads to neglect of children who deserve care. Many other physicians do not realize that serious tuberculosis is not at all rare in infancy.

There are two measures of the incidence, namely, the tuberculin skin reaction, and the death rate. The widespread impression among physicians that the tuberculin reaction is of little significance, and that practically all children after infancy are infected is far from the truth. The tuberculin reaction gives very definite information; it shows that the tubercle bacillus has lived and grown in the child's body and has given off something, exciting a sensitivity of the body cells to tuberculin. A positive tuberculin skin test does not tell whether the disease is active or not, nor whether the lesion is tuberculous, but merely that the individual has been infected at some past time.

Of the skin tests, the Mantoux or intracutaneous test has supplanted all others, since it is much more reliable than the Pirquet, Moro, or Calmette tests.

The death rate from tuberculosis, another measure of incidence, is as high in the first two years as any year until early adult life. It falls off rapidly up to five and the lowest rate is from five to 15, after which there is a steady rise. Tuberculosis is often a fatal disease in infants, but relatively not fatal in school children. The clinical aspects of tuberculosis are different in infants (up to two or three) and in older children, and they need separate consideration.

### INFANCY TYPES

In infancy the primary focus gives few physical signs. A transcient unexplained fever and perhaps failure to gain well are its only symptoms. In fact the element of surprise is the predominant note in nearly all infantile tuberculosis. The following types may be distinguished.

1. Tracheobronchial adenopathy of large extent. Such infants usually have fever and do not gain well. The chest shows practically no signs. The roentgenray gives a wide supracardiac shadow, often rounded outlines on one side or both, suggesting nodes.

2. Cases of "marasmus." There may be a story of feeding difficulty, but many infants do well at first and then begin to fail. Routine roentgen-ray should be done on all such patients and may reveal definite tuberculosis in the lymph nodes or wide dissemination, or even large cavities.

3. Cases simulating pneumonia. Fever, prostration, cough and physical signs of consolidation or with crackling, resonant rales at the bases suggesting bronchopneumonia. These infants may be emaciated but are often fairly well nourished. The roentgen-ray shows mottled shadows over part or all of the pulmonic fields, indicating bronchogenic disseminated tuberculosis or localized consolidation much like a lobar pneumonia.

4. Unexplained high fever, without local signs, often turns out to be disseminated pulmonary or generalized tuberculosis.

5. A final group includes the cases which are definitely suspected of tuberculosis from the outset.

Physical examination of the lungs is often most unsatisfactory in small children. The stethoscope is the least useful instrument at our disposal in the tuberculosis seen in childhood. The roentgen-ray may reveal large lesions in cases where no signs whatever can be elicited either before or after seeing the film. In all the acute and exudative forms of tuberculosis there is a leukocytosis.

### OLDER GROUPS

Older children with a positive skin test, fall into the following groups.

1. Recent infections in those who have been infected within two years or less, that is, those who have a fresh primary complex.

2. Those who show calcification in the hilus region of the lung, perhaps a calcified primary focus in the parenchyma.

3. Children who have been infected more than two years who have healed their lesions by resolution and show no calcification.

4. A few who have definite pulmonary tuberculosis.

5. A few who have non-pulmonary tuberculosis in mesenteric nodes, cervical nodes, bones, kidneys or skin, etc.

It is important to determine whether the disease is active or not, since this is the keynote of treatment. Constitutional symptoms are more significant than roentgen-ray findings or physical signs. The better way is to test the children first, then roentgen-ray the positive reactors and in addition seek for signs of activity in all, regardless of the roentgen-ray findings.

The clinical picture of activity is characteristic and quite obvious to a trained observer. The symptoms and signs are few but added together should be enough to arouse suspicion of what is happening to the child. Fever is an almost constant sign of activity; that is, a rectal temperature which rises above 100° nearly every day. Temperatures under 100° may be disregarded in childhood. The fever is irregular, rising to a different level on different days. The highest point may be at any time of day or even in the middle of the night. The great irregularity is characteristic.

Failure to gain weight at the proper rate, (if due to malnutrition) is always a suspicious sign. No other disease seems to exercise so prompt an effect on the nutrition in childhood. Gain in weight may occur in adults with advancing lesions, but is rarely seen in children. There is often secondary anemia.

In infancy, fever, loss of weight, with or without persistent signs in the lung, should suggest tuberculosis. Of course, bone disease and meningitis always do so. A Mantoux test, the roentgen-ray and carefully recorded temperature and weight curves are necessary to complete the diagnosis.

In older children, failure to gain, languor, fatigability, a low transmission of the tracheal whisper and hypertrichosis are suggestive. Phlyctenules, tuberculides or other local disease may be the first sign. With a positive Mantoux, fever is significant of activity even with a normal roentgen-ray.

In the diagnosis of tuberculosis three questions should always be kept in mind.

First. Has the child been infected with tuberculosis? Answered by the Mantoux test.

Second. What is the site of the disease? The answer may be given by the symptoms, physical examination and roentgen-ray films. All of these may be practically negative, but in this event the mediastinal nodes are probably the site of the disease, since they are involved in most primary infections, or secondarily to some degree even when the primary complex is elsewhere.

Third. Is the disease active, stationary, or cured? This must be judged by general symptoms, fever, the effect on the nutrition and by any signs or symptoms of local activity.

### TREATMENT

The treatment of children with tuberculosis is based on the same principles as those used in adults. If there are no local or general signs of activity a child should lead a normal life with somewhat closer watching than usual. Activity of the process as shown by fever, failure to gain and local signs of activity, demand rest until all the symptoms have entirely disappeared. The diet is important. Children do not take food nor digest it well if fed too often. Milk between meals or with meat meals is not advisable for any child.

The difficult period comes when a child first begins to get up. As soon as the temperature stays under 100° for several weeks, if he is up to normal weight, and if there is no contraindication from local signs of activity, he may be allowed up a little at a time, but with care to avoid over-exercise. The effect on the temperature is the guide, as in adults. If the temperature again rises as a result of activity it is necessary to put him back to bed again and start over again.

The Tuberculosis of Childhood, Charles Hendee Smith, Annals of Internal Medicine, March, 1935.

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## THE SOCIETIES

**The Madison Six County Medical Society** held the June meeting at Tilden on the 25th, dinner being served to 68 physicians, dentists and their ladies in the Methodist church basement preceding the scientific program.

Dr. O. J. Cameron, Omaha, gave an illustrated lecture on "Mycotic Infections of the Skin," which was much appreciated because of the lucid manner of presentation.

Dr. J. J. Keegan, Omaha, reviewed the diagnosis and treatment of "Head Injuries" in a manner readily grasped by the average medical man. Dr. William Schearer, Omaha, spoke on oral surgery with special reference to focal infections. He cited a number of cases of angina pectoris cleared up after radical jaw surgery had removed nests of streptococci. He does not assert that angina is due to focal infection, but thinks it remarkable that after cleaning infections from the jaws in angina patients, the angina should not recur.

Altogether this was a very interesting meeting.

## HUMAN INTEREST TALES

Dr. J. V. Beghtol, Hastings, recently visited Pacific Coast points.

Dr. C. B. Howard, an Omaha young physician, has located at Blair.

Dr. Edgar Cline, Nemaha, attended clinics in New York City recently.

Plans for financing a new and larger hospital are under way at Wahoo.

Dr. L. D. James has become associated with Dr. F. W. Shank, Oxford.

Dr. Lothar P. Egen, Hastings, recently spent some time at New York clinics.

Dr. Milan Baker, whose family home is Norfolk, has located at Battle Creek.

Dr. R. R. Brady for some time located at Wood Lake has moved to Ainsworth.

Dr. C. A. Lutgen, Auburn, and Miss Edna Hanke, Nebraska City, were married July 10.

Dr. Horace Schreck has located at Holdrege. He is a son of Dr. W. A. Schreck, Bertrand.

Dr. Victor Levine, Omaha, noted biologist, has again gone to the Alaska Arctic to study nutrition.

Dr. Paul Shaughnessy and family, of Cleveland, visited the former's parents at St. Paul, Nebr., in June.

Dr. F. C. Shepard, recent Lincoln interne, has become associated with Dr. E. C. Morgan, Clay Center, Kansas.

Dr. W. W. Arrasmith, Grand Island, has been appointed a member of the Nebraska Aeronautical Commission.

The newly projected Lexington Community hospital shows progress, articles of incorporation having been adopted.

Dr. John F. Allen has succeeded to the presidency of the Nebraska Tuberculosis Association, vice F. W. Heagey, resigned.

Dr. and Mrs. B. R. McGrath, Grand Island, accompanied by friends, recently visited Zion National Park and Boulder Dam.

Dr. and Mrs. F. A. Long, Madison, spent two weeks at Seni-Om-Sed Lodge, Woman lake, Hackensack, Minn., early in July.

Dr. A. M. Sonneland, Bellingham, Wash., former Norfolk physician, has been appointed health officer of Whatcom county.

Dr. and Mrs. G. W. Pugsley, Bayard, recently made a trip to Steamboat Springs, Colo., to attend the wedding of a relative.

Dr. B. N. Corbin, Tacoma, Wash., visited friends in Schuyler, Tekamah and other Nebraska points recently. He was sometime physician at Schuyler.

Dr. John Reagan, recently an interne at St. Joseph's hospital, Omaha, has located at Madison in succession to Dr. George Hansen, recently removed to Omaha.

Dr. and Mrs. Aaron McMillan, who have been in the medical mission field in Galangue, West Central Africa, for six years, have returned to Omaha. Dr. McMillan was formerly in practice in Omaha.

Dr. C. H. Arnold, Lincoln, attended the meeting of the Americal Association for the Study of Goiter at Salt Lake City the latter part of June and from that point he and his son made a trip to Alaska.

Dr. A. L. Miller has sold the Kimball hospital to Dr. J. B. Pankau, a former associate. In turn, Dr. Sinclair has purchased certain holding from Dr. Pankau at Dalton and will succeed to the Pankau practice there. Dr. Miller will take advanced work in surgery in the east and may locate on the west coast.

## ROSTER OF OFFICERS—1935

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|---|---|
| Claude A. Selby, North Platte, President | 1935 |
| George W. Covey, Lincoln, President-elect | 1935 |
| George L. Pinney, Hastings, Vice-President | 1935 |
| William Shepherd, Rulo, Vice-President | 1935 |
| R. B. Adams, Lincoln, Secretary-Treasurer | 1936 |

### COUNCILORS

| | |
|---|---|
| A. P. Overgaard, Omaha, Secretary | 1936 |
| A. L. Cooper, Scottsbluff, Chairman | 1935 |
| W. R. Boyer, Pawnee City | 1936 |
| R. J. Lehnoff, Lincoln | 1936 |
| E. L. Brush, Norfolk | 1936 |
| Homer Davis, Genoa | 1937 |
| H. E. Potter, Fairbury | 1937 |
| D. D. King, York | 1937 |
| W. J. Douglas, Atkinson | 1937 |
| R. D. Bryson, Callaway | 1935 |
| L. W. Rork, Hastings | 1935 |
| O. R. Platt, North Platte | 1935 |

### DELEGATES TO THE A. M. A.

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|---|---|
| R. W. Fouts, Omaha | 1936 |
| B. F. Bailey, Lincoln | 1935 |

### DELEGATES TO COUNCIL ON MEDICAL EDUCATION OF THE A. M. A.

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|---|---|
| J. S. Welch | Lincoln |

### PROGRAM COMMITTEE

| | |
|---|---|
| Morris Nielsen, Blair, Chairman | One Year |
| J. W. Duncan, Omaha | Two Years |
| J. D. McCarthy, Omaha | Three Years |
| Roy H. Whitham, Lincoln | Four Years |
| R. B. Adams, Secretary, Lincoln. | |

### CANCER COMMITTEE

| | |
|---|---|
| James F. Kelley, Omaha, Chairman | 1939 |
| George W. Covey, Lincoln | 1938 |
| W. C. Harvey, Gering | 1937 |
| John Buis, Pender | 1936 |
| J. M. Willis, McCook | 1935 |

### PUBLIC POLICY AND LEGISLATION

| | |
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| B. F. Bailey, Chairman | Lincoln |
| R. W. Fouts, Vice-Chairman | Omaha |
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| J. W. Duncan | Omaha |
| E. W. Rowe | Lincoln |
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| E. G. Johnson | Grand Island |
| R. B. Adams, Ex-Officio | Lincoln |

### JOURNAL AND PUBLICATION

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| A. F. Tyler | Omaha |
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### CAMPAIGN COMMITTEE

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### COUNCIL ON MEDICAL EDUCATION

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### MEDICO-LEGAL DEFENSE

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| R. B. Adams | Lincoln |

### PUBLIC ACTIVITIES

| | |
|---|---|
| E. R. Hays, Chairman | Falls City |
| F. W. Heagey | Omaha |
| John T. Myers | Omaha |
| J. S. Welch | Lincoln |
| C. W. M. Poynter | Omaha |

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# MEDICAL ORGANIZATION OR POLITICAL CONTROL*

OLIVER J. FAY, M. D.,
Des Moines, Iowa.

Ours is a profession of many contradictions. We speak of the science of medicine, but it is a growing, not an exact science. We may assume that medicine, like other sciences, is based on certain definite, natural laws, but great as have been the developments in the field of medical science during the past few decades, our knowledge of these basic laws is still so rudimentary that what we accept as truth today may be proved false tomorrow. It is therefore essential that we maintain an open, a receptive mind; that even while we carry on within the limits of our present day knowledge, we preserve an iconoclastic attitude towards the science on which our work is based. Only so can we further the advance of scientific medicine. Yet no other profession has such a heritage of traditions, a heritage which is at once its strength and its weakness, its crowning glory and its greatest curse. Our 2,400 year-old hippocratic code was but the unification of a tradition which had been evolved through preceding centuries. Under that code service to humanity is a first law, a law which transcends all others. In our preoccupation with that creed of service or perhaps sometimes through an overweening desire to cling to our professional halo of otherworldliness, we physicians have been prone to overlook some practical aspects of that creed, have failed to take account of dangers that menaced not only the welfare of our profession, but the service to the sick that is the very essence of that creed. While we have held ourselves aloof from politics in the belief that medicine is a jealous mistress who demands all of her disciples' time, strength and whole-hearted devotion, the theorists and the lowering politicians have sought to make the practice of medicine an incidental government activity, to degrade our humanitarian profession to the rank of a trade union under lay control.

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*Guest speaker address given at the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

You may feel that I am an alarmist, that I but paint the devil on the wall, and paint him in unduly garish colors. I have only to call your attention to those sections of the Social Security Act that deal with the socialization of medicine to prove to you that state control of medicine is not a figment of my imagination, but a very present peril. If you have any illusions in regard to the freedom of your profession under government aegis, I would remind you of the conditions under which the medical provisions of this act were framed. The leaders in our profession, physicians who have first-hand practical knowledge of the care of the sick, of the needs and handicaps of medical work, were not called in to discuss the advantages and disadvantages of socializing medicine, to help frame the proposed measure that would place their profession under state control. Some of these leaders were finally summoned to Washington, it is true, to be shown the dotted line as a sop thrown their profession. The medical clauses of the act were formulated and written by the sociologists and by the theorists of our profession. If you have given them even casual thought I need not tell you that these sections were not the fruit of bedside experience, but of chair-warming thought, nor need I point out to you who know at first hand what it means to stand at a bedside that the bureaucrat has little in common with the disciple of Aesculapius.

It boots us little to inquire into the origin of the movement towards socialization of medicine, yet the subject is not without interest. We should have been forewarned some years ago when a self-appointed committee on the costs of medical care undertook a survey of the medical service given our country as a whole, the cost of such service, and the ability of the average family to meet those costs. That committee was, for the most part, made up not of those with first-hand knowledge of the practice of medicine, but of theorists, of doctors of philosophy and not of medicine. The committee published a series of booklets giving the results of their survey, and a final report to which certain members of the committee took grave exception. The conclusions of the majority—a group from which those engaged in the actual practice of medicine were conspicuously absent—were that while physicians were for the most part underpaid and often overworked, the average man received inadequate medical care and such care as he did receive cost him too much. A system of health insurance was proposed as a panacea for these evils, a system which, while ostensibly protecting the personal relation between physician and patient, would in reality take the control of medical practice away from the medical profession and put it in lay hands. The minority report disagreed not only with these conclusions, but also charged that they were not based on unbiased material which should have been available, but rather upon material which had been hand picked to support preconceived theories.

This would be ancient and forgotten history if the sociologist had been forced to depend upon his own theories and logic alone in laying his case before the public. The sociologist's voice, whether raised in peans of praise or in scathing denunciation would not have penetrated beyond the circle of his own kind, for the public finds sociology of even less interest than it finds medicine, and to medicine in the abstract it has always turned a deaf ear. It is interested not at all in medical educational campaigns. The average man is concerned not at all with health in the abstract; it is only when his head throbs, his stomach aches, his joints become rheumatic that the science of medicine concerns him. The sociologists' campaign became a menace only because it had the backing of such foundations as the Twentieth Century, the Milbank, and the Rosenwald. Propaganda is an insidious but an all-powerful weapon; we have seen that it may foment a war; can we doubt that it can effect revolutionary social changes? The Aladdin's lamp which commands the services of this omnipotent genie is gold, and this lamp has been placed at the disposal of the sociologists through their key positions in the direction of the work of some of our great philanthropic foundations. Medical progress owes much to some of these foundations; their generous support has made possible some of the most valuable scientific contributions of the last decades, and the perpetuation of such endowments promises still greater advances in the near future. It is a tragedy—and it is not alone nor even chiefly a tragedy for the medical profession—that some of these foundations should now have come under the unholy influence of those master theorists, our sociologists, and so be led to attempt to tear down what they had helped create. We might uncharitably infer that these sociologists are not entirely disinterested in evolving a scheme of socialized medicine in which administrative positions would fall largely to those of their own ilk, but let us instead assume that they are merely in the unfortunate position of being so close to the problem that they are unable to see the medical woods for the sociological rees.

During the past some years many of our periodical publications have taken a critical and unfriendly attitude towards the profession for which it is not easy to account, an attitude which has undoubtedly profoundly influenced the feeling of the public towards the physician. It is only necessary to glance through the index of any year's publications to find what a variety of sins of omission and commission are laid at our door. The death rate among children and among mothers is disgracefully high. and we are held up to public scorn because we have failed to lower it. The public may have failed to cooperate but this does not lessen our guilt. Have we not ourselves admitted our responsibility by publishing frank reports on surveys of the causes for this mortality? Over and over again we as a profession are criticised for the poor average quality of the medical service provided, yet, whenever and wherever we have sought to have the legal requirements for those who would practice the art of healing raised or even made uniform, we have been cried down as self-seeking members of a medical trust. We are denounced because adequate medical care is said to be beyond the financial reach of a large part of our population; because while the poor are well provided with medical care in free clinics supported by medical schools, by municipalities, by hospitals and private endowment, the great middle class is unable to pay for like medical care; because the rich are asked to pay larger fees than are the poor or even those of moderate means—an obvious injustice to be charged against our profession since service is service, regardless of the rank and wealth of the person to whom such service is rendered. One month some magazine points out the difficulties that beset the average person in search of skilled medical care, and stresses the greater service, the better facilities afforded under clinic or group practice. Next month some other periodical bewails the fact that physicians are deserting our sparsely settled rural districts, even our small towns in order to locate in our cities; the virtues of the pioneer physician who willingly spent his days and a large part of his nights in the saddle struggling over rough trails in summer heat and winter storms are extolled; his first thought was service, his last thought his personal comfort, and the remuneration which would mean a safe future for himself and his family. We are proud of these pioneer physicians who preceded us by only a generation or two. If their pre-medical education was for the most part limited to some months of grooming and driving the old doctor's horse in return for the privilege of reading his few books and sometimes understudying him in an hour of special need, their medical education to a term or two at some crudely equipped medical college. they carried on in the traditions of their profession, they handed on the torch. But I cannot concede that the implied criticism of the physician of today is in any way justified, nor that he need yield to the physician of any age in his devotion and loyalty to his profession and its traditions. The physician of today spends as many years as the pioneer physicians spent months in preparing himself for his calling, and he often invests not only his patrimony in his education but also mortgages some years of his future to secure the best possible preparation for his life work. He has exchanged a saddle horse for an automobile, it is true. but the mortality records in our profession seem to indicate that the heavy toll exacted as the price of a twenty-four hour devotion to duty has not been lessened by the change. The pioneer days were days of barter and trade, and it is not easy to judge a pioneer income by modern standards, but it should not be held against the physician of our time if in return for a life of service, he hopes to acquire enough of this world's goods to enable him to educate his children. to keep abreast of his profession by the purchase of medical books and equipment, through taking time off now and then to rub shoulders with other members of his profession, and finally to keep him from want in his old age should he fail to share the common fate of those in his calling and drop in the harness. Whatever the hardships of the pioneer physician's life, there was one handicap with which he did not have to contend—the campaign to undermine the public's confidence in him systematically carried on by the periodical press.

If now and then a voice is raised in high places insinuating that the present day method of caring for the sick is not satisfactory and should be revised, we may accept it as an honest, but not too well informed expression of opinion. The professional politician's advocacy of the state control of medicine is on the other hand capable of the most simple explanation: the wider the spread, the more far-reaching bureaucratic control can be made, the more permanent, the more effective the political machine. We have yet to see any project, any system, large or small, which is more efficiently, more economically managed by our politicians than by private enterprise, but the politician can always rely upon the public's short memory. The political formula is a simple and unfailing one; one has but to offer the public something for nothing to have its support—at least temporarily. The public has always found it pleasanter to pay for pleasures and luxuries than for mere medical care. The insidious propaganda and misinformation disseminated by printed word, the financial stringency that has made itself more and more felt during these years of the Great Depression, and finally the growing belief that that good fairy. the government, should freely confer increasing benefits on all and sundry without money and without price have all combined to set the stage for the socialization of medicine.

Is the charge that the medical profession as a whole opposes state medicine because that profession is selfish and tradition-bound justified? Are we to be regarded as self-seeking obstructionists because we do not give our whole-hearted support to the idea of bureaucratic control of our profession? The public outnumbers the medical profession some eight hundred to one, and as some of our sociologists have so great-heartedly pointed out, the welfare of the few should be considered secondary to the welfare of the many. Discriminatory legislation has always been considered against our American tradition, but we as a profession have *lived,* not *voiced* our belief in the doctrine of the sacrifice of self for the relief and benefit of others. Nor did that professional spirit of unselfish devotion to public weal perish with the passing of saddle bags and pioneer. That spirit has been demonstrated again and again in times of epidemic and crisis. It is demonstrated today in the nation-wide cooperation of the profession in relief work and in the greater total of uncompensated service not made of public record. I challenge any profession, any business, any organization of bureaucrats to show a record of public service in any way comparable to it. We may have lacked political acumen, have been too busy at the bedside to climb aboard the political band wagon, but we should not be charged with selfishness. Our judgment should be accorded the weight of experience, an experience unbiased by a desire for political preferment.

It is not alone that government operation of any activity has been proven costlier and less efficient than a like activity under private control, though these are vital matters which should command general consideration. From the vantage point of professional experience, there are other grave objections to the state control of medicine. No system of medical insurance has been suggested which in actual operation would safeguard the personal relationship between doctor and patient, and any system devised for the care of the sick which fails to safeguard that relationship is handicapped from the start by the loss of a vital factor. To receive something for nothing may seem highly desirable in the abstract, but when face to face with pain, illness, or the fear of death, the sick face not an abstract, but a very concrete problem. There is consolation and support in the thought that professional care is being given by a physician of one's own selection, by a physician to whom one is not a case number but a patient, a physician who realizes that to his patient discomfort. pain, the battle for life itself is a particularly personal matter. There is a lurking fear and distrust of free medical service however faithfully and generously that service is given—a suspicion that one might command more if one were a private patient. All of you who have cared for charity patients—and who of you has not?—have been faced by this problem.

In another vital matter, the science of medicine does not lend itself to political standards. The greatest contributions to medicine have been the work of gifted men—I use the word in its impersonal sense—who have been selflessly devoted to science; who have been indifferent to hours of work, to personal gain, even to professional advancement. It is difficult to conceive that medicine under bureaucratic control would continue to attract such men to its ranks, or that once in the ranks of the profession—or should it then be called a trade?—they could reconcile the inexorable demands of political preferment and party politics with the undivided attention required by their work. It is true that the men who are capable of and so fortunate as to make epochal contributions to medical science make up but a small percentage, a very small percentage, of the profession. Let us suppose that by some happy and almost miraculous chance it is possible to sort these out, and have them carry on their work in some privately endowed research center, or great educational institution which by some like alchemy is kept free from the taint of political control. What of the rank and file of the profession, that large body of men who would face the problem of caring for the sick? Would that rank and file be of the same high average standard of today, or would it not rather be filled by men of the caliber of our average professional politician? If medicine were socialized tomorrow, who of you with a son about to enter college would wish to have him choose medicine as a profession?

We grant and grant freely that changes in methods of medical practice must be made to meet the needs of a rapidly changing world, but those changes should be gradual, should be evolutionary rather than revolutionary, and they should take into account the local character of many of these problems. Some superbranch of the NRA might effect great savings by standardizing all men's suits, but some difficulty might be encountered in making over the men to fit the established standard. Latitude rather than official standards is desirable here, let us say. Because of regrettable variations, we must leave something to the individual, and the matter of fitting him to his suit may better be handled through some local clothier than through some bureau in distant Washington. In the same way, the problems of the crowded city slum are not the problems of a sparsely settled western county, even though some great emergency may bring like need to both, and a satisfactory solution to those problems can best be worked out by those who live with and are familiar with them. Certain basic problems touching the practice of medicine also call for solution. Here, too, they can best be solved by those within the profession, but if we fail to solve them and to solve them satisfactorily, we cannot hope to escape intervention from outside our profession. The bureaucratic control of the practice of medicine waits just without the door. Can we save the public and the profession we love from its menace? And how?

There is only one answer—state medicine will inevitably come unless we have a closely organized profession. We do not lack for professional organizations—we are overburdened with them—but we do lack organization, solidarity of purpose. Our very profession tends to make us individualists, content to do our own work while we let the world and our colleagues go by. But we are lost if we cling to our individualism, or if, organizing, we expect our organization to work miracles. The American Medical Association is a great, a uniquely great organization, but it is dependent—dependent upon the state medical societies which compose it. Those state medical societies are in turn only as powerful as the county societies of which they are made up. The county societies are themselves strong or weak as their unit societies are strong or weak. And these local societies are potent or impotent in direct ratio to the percentage of their membership and the active interest of those members in their profession. The most eloquent representative of the American Medical Association might sit patiently day after day in some Washington anteroom and at best be accorded a non-committal hearing by some under secretary: that hearing would be only sop to his own pride. But if we had a united profession, and each member of our great medical organization were to get into touch with his own state representative and senator, were to urge representative citizens of his community to do the same, we should have a power that no great political organization would dare ignore. No single group of men would have a like opportunity for close personal contact with public and with government representatives alike, and the very fact that that interest was for public as well as personal weal would lend strength to its appeal.

I am a doctor, not an orator. I can appeal only to your reason, not to your emotions. But I would that I had the gift of words that I might make you see the imminence, the gravity of the peril that confronts us. If you were fully aware of these, you would return to your home determined to make every colleague worthy of a place within our ranks a member of your local society. A great common need recks nothing of personal differences and jealousies; it recognizes only comrades in arms. You would place yourself and your local society at the service of your state organization that it in turn might become one of 53 powerful units. These units would together form an organization that could not be denied, because it would have no divided allegiance, but a singleness of purpose. That purpose is the furtherance of the medical profession, and through that profession of the physical and the material well-being of the country we love. God forbid that we doctors aspire to a political dictatorship, but may He spare us that greater tragedy—the degradation of bureaucratic control.

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## NOT MEDICINAL

Customer: "Have you anything besides Glustick's corn syrup?"

Grocer: "Why, no, but that's the best brand that comes."

Customer: "Well, it never done me any good—I took six cans of it and my corns are as bad as ever."—Pathfinder.

# TRANSURETHRAL RESECTION OF THE PROSTATE WITH SPECIAL REFERENCE TO THE FOLLOW UP*

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Transurethral resection of the obstructions at the bladder neck has been going through a period of probation. That period has ended. Sufficient time has elapsed and a sufficient number of cases have been subjected to this form of treatment so that one may form an adequate idea of its merit.

To determine the present status of prostatic surgery in Lincoln, the authors pooled their cases. A careful analysis of 274 cases was made and questionnaires sent out to determine the patient's own opinion as to whether they were well, improved or unimproved. This analysis covers a period of two years and four months, ending January first of this year.

### TABLE I

| | | |
|---|---|---|
| Total Cases Resected | 274 | |
| Total Number of Resections | 316 | |
| Benign Obstructions | 231 | |
| Carcinoma | 31 | 13½% |
| Bars and Fibromatous Contractions | 12 | |
| Rhabdomyosarcoma | 1 | |
| Benign Composite | 231 | |
| Repeat Resections | 41 | |

This paper deals with the analysis of the cases of benign hyperplasia. On a large work sheet the following data was collected from the hospital records of these patients:

Admission date (Name, address, date, hospital number).
Age.
History (Durations of symptoms, catheter used, etc.).
Physical examination (blood pressure).
Urological examination (size of prostate, blood urea, etc.).
Pre-operative course (time of catheter drainage, etc.).
Operation (anesthetic, grams of tissue resected).
Pathology (microscopic examination of tissue removed.
Follow up.

From this work sheet it was easy to get a perspective of this prostatic group as a whole. The average age was over 67 years and there were five times as many cases over 80 years of age as there were under 50, and nearly as many over 80 years as there were between 50 and 60 years of age.

### TABLE II
### ANALYSIS OF AGES—BENIGN HYPERTROPHIES ONLY

| | |
|---|---|
| Over 80 Years | 27 |
| 70-80 Years | 88 |
| 60-70 Years | 80 |
| 50-60 Years | 31 |
| Under 50 Years | 5 |

Average Age 67.7 Years

The review of the histories showed that frequency and nocturia are universal complaints. The duration of symptoms of one to three years and longer is common. Why did so many of these cases wait so long when they had such severe symptoms as frequency, difficult and painful urination? Were they told by their doctor that this condition was natural in old age, and that they would just have to stand for it? Were they afraid of a prostatectomy? Did they know cases who had undergone operation and never regained health afterward? These questions came to our minds.

### TABLE III
### SYMPTOMS IN ORDER OF FREQUENCY

| | |
|---|---|
| Total Cases Analyzed All Benign | 231 |
| Frequency | 231 |
| Nocturia | 231 |
| Dysuria | 116 |
| Acute Complete Retention | 57 |
| Hematuria | 8 |

| | | |
|---|---|---|
| Dribbling | Incontinence | Chills |
| Fever | Backache | Weakness 1 or 2 |

### TABLE IV
### DURATION OF SYMPTOMS

Group A

| | |
|---|---|
| Less Than 1 Year | 27 |
| 1-3 Years | 73 |
| Over 3 Years | 55 |

Group B

| | |
|---|---|
| Less Than 6 Months | 9 |
| 6 Months-2 Years | 10 |
| 2 Years-5 Years | 20 |
| 5 Years-10 Years | 12 |
| 10 Years-20 Years | 10 |
| Over 20 Years | 5 |

In the analysis of the physical findings it was noted that blood pressures of 140 to 160 were normal for this age, and about one-half the group fell in this class, the remainder being above or below normal. The associated pathology is listed in order of frequency of occurrence.

### TABLE V
### ASSOCIATED PATHOLOGY

| | |
|---|---|
| Urinary Tract Infection | 73 |
| Uremia | 37 |
| Heart Disease | 26 |
| Arteriosclerosis | 10 |
| Inguinal Hernia | 10 |
| Vesicle Calculi | 9 |
| Diabetes | 7 |
| Diverticuli | 7 |
| Hydronephrosis (Symptomatic) | 6 |
| Epididymitis | 6 |

Associated pathology found less frequently was urethral stricture, hemiplegia, Parkinson's disease, renal calculi, varicocele, acute bronchitis, bronchopneumonia, varicosities, hydrocele, obesity, perinephritis, previous prostatectomy, metal indwelling catheter, leg ulcers, ball of vaseline in bladder and arthritis.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

The frequency of damage to the upper urinary tract is shown by the following table of the blood chemistry in this group. This is a further index of how many cases delayed operation as long as possible.

### TABLE VI
### BLOOD CHEMISTRY

Blood Urea in Milligrams Per 100 CC.

| | |
|---|---|
| Under 40 mgms. | 92 |
| 40-100 mgms. | 108 |
| 100 mgms. or Over | 10 |
| Not Recorded | 21 |

Pre-operative preparation is given in Table VII to call attention to the fact that cases should be as carefully prepared for resection as for prostatectomy. The blood chemistry should be within normal and infection entirely controlled before surgery is undertaken. Vas ligation was performed in 100 cases. Medical consultants were called when associated pathology indicated. Intravenous glucose in normal salt solution was used freely in combating nitrogen retention and lowered renal function.

### TABLE VII
### PRE-OPERATIVE PREPARATION

| | |
|---|---|
| Indwelling Catheter | 175 |
| Average Days | 7 |
| Supra Pubic Drainage | 10 |
| Average Days | 14 |
| No Drainage | 46 |

The operation of transurethral resection contrary to the popular conception is much more difficult and tedious than a prostatectomy. It is only easier for the patient.

Practically all of these cases were done under spinal anesthesia, using 2 cc. of 2% pantocain. The usual preliminary medication was three grains of sodium amytal the night before and early in the morning, and one-fourth grain of morphine thirty minutes before operation.

The average amount of prostatic tissue removed was twenty grams. In the latter part of our series of cases we noted that we were both removing more tissue than in the first few cases. The dictum which at first said to resect a passageway from the veru-montanum through to the trigone changed to excavate the hyperplastic gland as completely as possible. We now know that it is only when sufficient tissue has not been removed that trouble arises from sepsis frequency and burning. If a residual urine persists, urinary antiseptics and anti-spasmodics are of little use.

Complications encountered were:

| | |
|---|---|
| Sepsis | 10 |
| Hemorrhage Delayed | 8 |
| Perivesical Abscess | 1 |
| Thrombo-Phlebitis | 1 |
| Pneumonia | 1 |
| Pulmonary Infarct | 1 |
| Burn Extremity | 1 |
| Extreme Lethargy | 1 |
| Decubitus | 1 |

The average days for an indwelling catheter following resection was five. The catheter should usually be in at least three days.

Voiding upon removal of catheter was satisfactory in 185 cases, difficult in 10 and 36 were unable to void. There were 41 repeat resections.

Average number of days in the hospital was 15, after resection 10.

| | |
|---|---|
| Mortality | 7 or 3% |
| Pre-operative | none |
| Post-operative | 7 |

Causes of death given:

1. Perivesical abscess.
2. Hemorrhage.
3. Heart (2 cases).
4. Diabetes and sepsis.
5. Sepsis and uraemia.
6. General sepsis (bilateral renal calculi pyonephrosis).

### FOLLOW UP

*A. D. Munger, M. D., Lincoln*: Dr. Angle has given you the high points in the clinical picture of these cases. I shall attempt to do the same with the follow-up.

In the February, 1933, issue of *The Nebraska State Medical Journal,* appears an article entitled "Prostatectomy and Transurethral Prostatic Resection Compared."(1) In this article the author offers among his conclusions the following statements:

"What type and what percentage of obstructing prostates may be best removed by resection, and what type and percentage by prostatectomy, remains for the future to determine. These questions may be answered only by a fair and impartial analysis of end results."

"It seems doubtful whether, in the last analysis, the transurethral method, considering mortality rate, immediate functional results, and ultimate functional results, offers the patient as great a degree of assurance of continued health and comfort as does perineal prostatectomy."

Davis(2) has stated, "The value of a given surgical procedure may be determined only by a consideration of (1) the immediate mortality rate, and (2) the late functional results."

In order that a proper evaluation of the functional results in transurethral resection may be arrived at, Dr. Angle and myself, as has been previously stated, pooled our cases and sent to each patient an identical questionnaire. This series of cases represented 231 benign hypertrophies of the prostate which had been resected. Twenty-one of these cases had been resected three months or less and consequently a questionnaire was not sent to those individuals as it was felt that such answers as would be received from them would be in no way a proper criterion to the late functional results.

Two hundred and ten questionnaires were sent out. To January 1, 1935, one hundred and fifty replies to the questionnaires had been received. The following questions were asked of each patient:

1. Do you feel that your bladder is healed?
2. Can you control your urine?
3. Do you pass your urine too often?
4. How many times do you get up at night to urinate?
5. Do you pass your urine without difficulty?
6. As far as your operation is concerned, do you feel that you are
   Well
   Improved
   Unimproved?

As each questionnaire came in it was analyzed consecutively with no attempt at selection.

In our study of the answers to the first question, "Do you feel that your bladder is healed?" it was quite definitely evident that we should have accepted the six-month period as a dividing line beyond which to make a study of the late functional results, for it those cases which had been resected six months or over there were ninety-four who stated that they felt their bladder was entirely healed as against fifteen who felt that there was still some healing to take place in the bladder, while in those cases which were resected under six months there were only eighteen who felt that their bladder was entirely healed as against twenty-three who felt that their bladder was not healed, giving a total who felt that their bladder was healed of one hundred and twelve, and thirty-eight who felt that their bladder was not healed.

From those patients who stated that their bladder was not healed, an attempt was made to ascertain the reason therefore. The preponderant reply was that there was still some pus in the urine, with next in order that the patient still had frequency of urination.

From our standpoint it is believed that neither of these answers are a proper criterion as to whether the bladder is healed or not. On the other hand it does definitely set forth to us the necessity for a more zealous post-operative follow-up and an urinary antisepsis regime than we have heretofore instituted.

To the second question, "Can you control your urine?", one hundred and thirty-two answered "yes", ten "no" and eight variable. Of the ten patients who answered that they could not control their urine satisfactorily, only one of these patients had been resected more than six months, and it is consequently felt that a large majority, if not all of these ten, will come into normal control of their urine. The eight variables were about equally divided between those operated under six months and those operated longer than six months. Most of these people confuse frequency of urination with control, while in certain instances it was stated that exposure to inclement weather would promote urgency and dribbling. There were four among these variables, however, who were dissatisfied with the functional results and for reasons which will be presented under Question No. 6.

The question, "Do you pass your urine too often?" reveals ninety-one "no" and fifty-three "yes" and six variable. It must be held in mind that a large majority of prostatics have a temporary or permanent renal damage with the coincident polyuria pertinent thereto, and under which circumstances frequency of urination has very little relation to bladder-neck pathology. Whether or not these patients for the most part had ever had a prostatic obstruction, the attendant degenerative changes in the kidney would be productive of a polyuria. We believe for the most part that these patients who have continued frequency longer than six months will fall into this classification.

It is interesting to note among the ninety-one who state that their frequency is not bothersome at this time, their history shows in a great many instances an inordinate frequency before their operation, and some of these cases had very large prostates. The inordinate frequency which was manifest before the operation was in a large measure due to the bladder neck obstruction, although in a great many instances there is definite evidence of a degenerative kidney lesion which as time has ensued since the operation it has tended to repair itself to a large extent. We feel that unless the kidney is too badly damaged from the prostatic obstruction, that there will be a decided improvement over the several months following the operation.

In the cnsideration of question No. 4, "How many times do you get up at night to urinate?"

twenty-three patients answered that they did not get up at all. It is worthy of note here that all of the twenty-three patients had been operated more than six months. When we compared the present status of these twenty-three patients with their history before operation, there were none among them but what had a nocturia ranging from one to sixteen times per night. There were ninety-two patients who stated they void from one to three times at night, and thirty-five who stated that they must void three or more times nightly. Twenty-eight of the thirty-five cases who stated they must void three or more times nightly have been operated under six months. We are firmly convinced that a large majority of these twenty-eight cases will reduce their nocturia to a reasonable minimum as time ensues.

Possibly the symptom which actuates more prostatics to seek advice from their physician is the progressive difficulty in the passage of urine, difficulty not infrequently to the point of complete obstruction; and interestingly the average prostatic's primary concern is to have his difficult urination rectified. Consequently the answers to the fifth question, "Do you pass your urine without difficulty?" is of primary importance to the patient as well as ourselves in the proper evaluation of a functional result. One hundred thirty-seven patients who had heretofore complained of difficulty in urination, even to the extent in fifty-seven instances of complete retention, all answered they could now pass their urine without difficulty. Thirteen cases still have some difficulty in passing their urine. In-so-far as possible we have attempted to ascertain the reason these thirteen cases manifested residual difficulty in voiding.

In most instances it was quite definitely ascertainable that the difficulty was due to inadequate resection on our part. For the most part these thirteen cases are among our early cases of resection, and whenever it has been possible we have invited the patient to return for re-resection in order to complete the situation satisfactorily. Six of these cases have been operated under six months. We have concluded that in certain instances there is a definite vesicle atonicity which takes several weeks to recover itself following a resection. In certain instances at the time of removing the post-operative catheter in the hospital there has been difficulty in voiding and wherein our investigation revealed an adequate resection, we felt that time would increase the tone of the detrusor muscle thereby gradually regaining expulsive force sufficient to completely empty the bladder. Our contention in this respect has been borne out.

It is interesting to note in two instances patients with vesicle diverticulae of a retention type, who following their resection had difficulty coincidently emtpying the bladder, this situation gradually rectified itself to the extent of complete emptying of the diverticulae, thus obviating entirely the necessity for any further surgical interference. It is in this type of case, however, with cellules and small diverticulae wherein we have had our greatest trouble with persistent pyuria for several months post-operative. It is further interesting to note that even though a very definite number of these cases stated that while they still had a varying amount of trouble in passing their urine, they were perfectly satisfied with their operation, and felt that they were vastly improved in comparison with their situation prior to their resection, and we have had a hard time to get these patients to undergo a re-resection.

In order that we might have an unbiased opinion from the patients themselves as to what they felt about the operation, we asked their opinion, "As far as your operation is concerned, do you feel that you are well, improved, or unimproved?"

Seventy-two patients voluntarily answered this question with the statement that they were entirely well from the standpoint of their operation, and seventy-four patients stated that they were improved. We both quite definitely feel that among these seventy-four who stated that they were improved, a great many of them mistook the question as far as "your operation is concerned" and merely answered the questionnaire as regards their general health. For in a great many instances where the patient has checked "improved" he has added an eulogistic postscript of some kind. There were only four cases who stated that they were unimproved. This gives a total per cent of 97.3 cases well or improved. The four cases who answered that they were unimproved are among those thirteen who stated that they still had difficulty in voiding and while we have accepted these four upon their own statement, that they are unimproved, yet careful investigation of these four shows that there is only one and possibly two at the most, who really should be considered unimproved. One case is dissatisfied because of a perineal fistula which we believe can be directly attributed to the resection. and the second case expresses dissatisfaction with the ultimate result and yet does not seem to be able to give any specific reason therefore. It can be said, however, that after six months postoperative some pressure was brought to bear concerning the payment of his bill, when he suddenly became filled with all sorts of complaints.

Among the other two who report unimproved, one is a patient who is an inmate of the County Poor Farm and insofar as I have been able to determine, had a very good piece of work done, but is generally sour with the world and is unwilling to concede any benefit from the procedure, although the physician in charge of the institution states that the man is definitely improved and has benefited much from the procedure. The last case of the four unimproved is a patient who has recently been sent to the penitentiary for "attempted rape" on an eleven-year-old girl. This patient is 74 years of age. Personal conversation and letters from him as well as the family throughout the period prior to his trial recount the very marked improvement which the man has achieved. However, upon conviction under the charge this man filed an appeal with the supreme court and soon after his appeal to the supreme court was made he received the questionnaire. Among the contentions in his brief to the supreme court was that he was physically unfit to serve out his sentence because of severe urinary tract disease. The patient undoubtedly felt that my questionnaire had something to do with his brief filed with the supreme court, and I could not convince him otherwise. His reply to each question is so filled with a recital of his very poor condition that it is really a very charming piece of literature. How much this man's transurethral resection had to do with his attempted rape is, of course, entirely conjectural. I testified in behalf of this old gentleman that I was sure that he was quite impotent, and I am quite sure the jury believed my testimony for the reason that they convicted the man of attempted rape only. This may or may not be an argument for transurethral resection.

In conclusion may we say that when we first took up transurethral resection in 1932 our approach was tinctured with considerable concern relative to the very answers which we have attempted to develop here today, that is, mortality rate and functional results.

As we have progressed along the pathway of this procedure our technical ability has become more refined, our immediate resections more satisfactory and our late functional results have proven that transurethral resection is a well merited procedure in the hands of those who are competently trained and with sufficient experience to do a proper resection, that in such hands the risk and mortality is minimal.

Diagnostically most astute judgment must be exercised in the selection of cases proper for this work. Properly selected and properly done the resectionist can expect 97% satisfactory late functional results.

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## DISCUSSION

DR. EDWIN G. DAVIS, (Omaha): I think Drs. Angle and Munger have given us an excellent presentation. It is only by a checking of results and by sending out follow-up questionnaires that we are able to determine what we are accomplishing. There is no doubt that any fair-minded individual whose eyes are open to progress is willing, or should be willing, to recognize transurethral resection as a valuable procedure which is here to stay.

I am using this method at the present time in a far greater percentage of cases than I am employing prostatectomy. What our late results will prove to be after an interval of several years no one can yet say. In the last analysis, it seems to me the keynote in deciding about these cases is proper selection. Let us not be wedded primarily and completely to one procedure to the exclusion of the other, but let us be open- and fair-minded.

DR. WM. L. ROSS, (Omaha): There have been many changes going on in the treatment of hypertrophied prostates. I wish to speak particularly of the benign character and offer another treatment, and that is the use of the x-ray. I have had quite a little experience in the treatment of prostates, both of the infected and the hypertrophied types. It is natural, since the x-ray will reduce diseased lymphoid glands in the neck and other parts of the body that the prostate, in which lymphoid tissue predominates, lends itself well to treatment by x-ray. The fractional dose of x-ray is what I generally use. It is such an easy, painless treatment. It will reduce the enlarged prostate, relieve the patient of all his pain and urinary difficulty just as well as a surgical operation. In treating an affected prostate by x-ray, you treat all of the prostate gland. You do not leave any enlarged, infected cells untreated because you cover the whole gland at each exposure. It relieves the patients, giving them as good relief as other operations. I think it is a method of treatment that should be considered and more often used.

DR. MUNGER: I do not doubt but what a great many have had occasion to become enthusiastic about sending our patients to some x-ray man who has talked us into the idea we could cure a prostate that way. My friend, Roscoe Smith, conceived the idea he could cure a prostate with x-ray. We tried out benign hypertrophy of the prostate with deep therapy. These cases have for the most part gone to operation because of obstructing syndrome. X-ray can't cure it. I don't care what type it is.

DR. ROSS: I should like to ask Dr. Munger if he has ever tried the use of the x-ray and to what extent; and to correct him in one statement. I was advocating the use of the x-ray at the time he spoke about the tuberculous kidney. At that time I only advocated the treatment of a tuberculous kidney and recited a case entirely cured.

DR. MUNGER, (closing): I may be "Carrying coals to Newcastle," but you asked for something and I am going to let you have it. A few years ago I read a paper on "Tuberculosis of the Kidney." Following the rendering of that paper, Dr. Ross advocated the treatment of tuberculosis of the urinary tract by x-ray. Today we talked on "Transurethral Resections," which we feel is a rational procedure, and Dr. Ross again talked about curing of the prostate with x-ray. In the same breath he confuses prostatitis with hypertrophy of the prostate.

What he is advocating is nothing new. I do not know whether Brinkley sponsored it. I think he did. Even he gave it up. Every now and then some x-ray man tries to cure hypertrophy of the prostate with the x-ray. The urologist has the prostate to take out later.

With all due respect to Dr. Ross, you cannot relieve hypertrophy of a benign type with the x-ray with any assurance it will stay that way. You may relieve the edema, but you still have your pathology present.

## THE EARLY DIAGNOSIS OF SYPHILIS*

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The results of venereal disease surveys conducted by the U. S. Public Health Service and the American Social Hygiene Association, in both urban and rural population groups, totaling about 26,000,000 people, have lead to the following conclusions (Parran):

1. More than one-half million people are constantly under treatment for syphilis in the United States (4.26 persons per 1,000 population).
2. There are 7.3 cases per 1,000 persons of new syphilitic infections each year (nearly one million new cases in the United States as a whole).
3. Varying in different communities, from one to two-thirds of cases are treated as private patients and the rest are dispensary patients.
4. Syphilis is four times as prevalent in urban as in rural areas, and five times as prevalent in negroes as in whites. The infection rate in males is 50% greater than in females. Syphilis is comparatively rare in certain rural areas but almost pandemic in boom towns and certain negro groups.
5. Only one-half of cases seek treatment within one year of onset, and of these only 6% start treatment in the sero-negative primary stage.
6. There has been at least an apparent and almost certainly a true increase in the prevalence of syphilis in the last eight years. Many of the clinics throughout the country which have not had their operations curtailed too drastically by withdrawal of financial appropriations are treating from three to ten times as much syphilis as they did ten years ago.
7. Congenital syphilis affects 2% of all new born babies. In obstetrical clinics, syphilis is present in from 3 to 25%. Congenital syphilis is the largest single cause of fetal death, being 12% to 50% of the total.

In few words, all of the foregoing may be summarized in this statement: Syphilis is as great a social problem in this country today as it was ten years ago, and probably greater, despite the fact that methods and materials for its treatment have improved and that more syphilology is being taught, both in the medical schools and in post-graduate work.

Wherein lies the cause of this increase in syphilis? There are many factors which are contributory. (1) One is the "conspiracy of silence" which tends to thwart many efforts on the part of the medical profession and Public Health Service to enlighten the lay public on venereal problems. There are many possible parties to this conspiracy: the churches to some extent; pseudo-idealistic clubs and organizations; newspapers; the radio (one of our great broadcasting systems recently pulled a last minute refusal to allow the very competent Dr. Thomas Parran to speak over the radio on syphilis); our present vice-policing methods; and last but not least, we ourselves are sometimes found to be rather reluctant to disseminate correct and understandable information even when it is requested.

(2) Another factor in the increase of syphilis is poor or absence of co-operation between the practitioner and health authorities as regards reporting of new cases, sources of infection, contacts, and effective follow-up. This aspect of syphilology would require appropriation of funds and a health department personnel far in excess of present day standards, and for the present at least, not much can be accomplished.

(3) A third great factor in the increase of syphilis is, no doubt, a failure on the part of many members of our profession to make the diagnosis of syphilis early, to institute treatment early, to give adequate treatment to the patient, determine and treat the source of infection, and follow up and treat if necessary any possibly infected contacts. It is the diagnosis of early syphilis (chancre or "secondary stage") with which I am chiefly concerned in this paper.

In general, the approach to the diagnosis of early syphilis is an objective one. The correct details of the history of exposures, symptomatology, prophylaxis if any, and treatment if any, are often impossible to obtain and even when obtained, difficult to evaluate, and I would recommend that any one who considers spending time and effort in attempting to diagnose or rule out early syphilis should spend that time and effort for the most part objectively, and more specifically, in the clinical examination of the patient, and in making laboratory studies. A good clinical impression backed by one or more laboratory findings having established a diagnosis, the physician is then at the "psychological moment", as Dr. Bartholomew of the Nebraska Health Department has put it, to obtain a history of exposures and contacts so valuable to the control of syphilis as a social problem.

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As to the clinical diagnosis of the primary lesion or chancre: it frequently happens that one who has seen many chancres is willing to say even without other studies, that a given lesion is clinically a primary sore. However, the more of these lesions one studies, the more one is convinced of the fact that it is easy to fall into error on either side of the fence, that is, to label a non-syphilitic lesion syphilitic, or to hold that a syphilitic lesion is non-syphilitic. A fair working rule is that all genital lesions are syphilitic till proved otherwise, and that inflammatory lesions of the lip, tongue, finger, and many other regions, which do not heal within two weeks should be regarded as suspiciously syphilitic. One great error frequently made is the placing of unwarranted value in the Wassermann, Kahn or other serologic tests in the diagnosis of the primary sore. More will be said about this presently. The one truly reliable method of establishing the diagnosis of the chancre, especially early, is the darkfield microscopic examination of the serum expressed or obtained by suction from the lesion, or by aspiration of one of the associated lymph-nodes, in order to demonstrate the spirocheta pallida. At present, probably only about one in twenty primary lesions are diagnosed by clinical suspicion and darkfield proof while the Wassermann test is still negative, and it should be our aim to diagnose more and more of these lesions at this early stage, for the prognosis for the patient for a perfect clinical cure is much better when treatment is started at this point, and the patient is rendered non-infectious very early, thereby decreasing the number of victims of contagion.

I should like to make a few brief points about this darkfield examination which I believe deserve stressing:

1. The darkfield examination should be done by one who has had special training in the best methods of obtaining the specimens in any given case, and in the actual microscopy. However, there is no reason why any specialist in this field who has a patient referred by another practitioner for one or successive darkfield examinations should expect to retain the patient for anti-syphilitic treatment, and vice versa, the practitioner should expect the patient to be returned promptly to him after the darkfield, for treatment, clinical or Wassermann follow-up or dismissal.

2. Darkfield examinations from such mucous surfaces as the mouth, vulva, or cervix especially demand great care in obtaining the specimen and experience in darkfield microscopy, as there are several non-pathogenic spirochetes which may be found in these regions, some of which closely resemble the spirocheta pallida. At times, regional lymph-node aspiration is essential, since the non-pathogens do not enter the lymph-nodes as does the spirochete of syphilis.

3. A single negative darkfield in herpes, chancroid (soft chancre), traumatic erosion, etc., taken early and for the sake of safety, does not insure safety, but demands a clinical, possibly a darkfield, and almost assuredly a Wassermann follow-up for two months, as these lesions are excellent openings for the entrance of spirochetes and syphilis develops much more slowly than the original lesion. A point that should be stressed is that three out of four chancroids, diagnosed as such early, can by darkfield and Wassermann follow-up for a few weeks, be shown to be mixed infections, that is, both chancroid and syphilis.

4. A negative darkfield on a suspected chancre that has been treated (phenol, mercury bichloride, ammoniated mercury, iodine, etc.) means nothing, as such a finding is the rule in the face of such treatment. Normal salt solution soaks and wet dressings are the proper pre-darkfield treatment, and any antiseptic is liable to lead to error.

5. No anti-luetic treatment should be given, on the strength of suspicion, before a darkfield examination is to be done. A single injection of neo-arsphenamine or bismuth may within hours render it impossible to find typical spirocheta pallida, and treatment is not as urgent as accurate diagnosis at this period.

The clinical diagnosis of syphilis after the secondary cutaneous and mucous membrane lesions have appeared is no less hazardous than that of the primary lesion. Its mimicry at times of psoriasis, lichen planus, pityriasis rosea, seborrheic dermatitis and other less common entities render routine laboratory support essential, and again the darkfield is important here in establishing early syphilis, while the Wassermann or other serologic test, although being very reliable in its positivity at this stage, may only indicate an incidental syphilis.

In the objective search for secondary syphilis, it is important to have all of the patient's skin and accessible mucosae exposed in good daylight. Artificial light often fails completely to show a roseola. As well as thorough examination of the skin and mucosae of the mouth, throat, genitalia, and anus for lesions, the scalp should be closely observed for luetic alopecia, the eyes for iritis, the bones and joints for tender periostoses and hydroarthroses, the superficial lymph-node chains palpated for the characteristic shotty discrete, freely movable, non-tender adenopathies so common in early syphilis, and the spleen and liver palpated. Frequently, a recent cranial nerve palsy will point to early meningeal or meningo-vascular involvement, which can readily be confirmed by the cell count, protein determination and Wassermann test on the spinal fluid.

During this period, however, the blood Wassermann, Kahn, Kline, or other good serologic tests are 99% to 100% positive and are of great practical importance as aids in diagnosis.

There are a few points, however, about the Wassermann and other serologic tests for syphilis which I should like to stress:

1. The Wassermann is not reliable in diagnosis of the early chancre, as it is most apt to be negative until the lesion has been present for two weeks, and is positive in only 94% of cases of primary sores of four to six weeks duration. The darkfield is mandatory at this stage.

2. When a Wasserman report does not coincide with good clinical opinion, it should be promptly repeated, and if another test as the Kahn or Kline has not already been done at the same time, these should be requested.

3. Too frequently a blood Wassermann test is taken early in the course of gonorrhea or chancroid, a negative report obtained, and the patient informed that he is safe as far as syphilis is concerned. If syphilis has been contracted along with gonorrhea or chancroid, the long incubation period of syphilis makes it necessary to observe the patient for months, and if a single blood Wassermann is to be relied upon for safety, it is better to wait three months from the onset of gonorrhea or chancroid before taking it. I would recommend that a blood test be taken at three months in all these cases anyway, as an intra-urethral, vulvar, cervical or other small primary sore may easily escape detection.

What of the person who has been exposed to a known actively infectious syphilitic? There is no early test which will tell us whether that individual has been infected with the spirochete, until the primary lesion appears. Perhaps 50% of such exposures never result in syphilis. Some clinics, if the patient comes for advice within forty-eight hours of exposure, will give an intensive course of arsphenamine and feel fairly certain that this is effective prophylaxis. Personally, I feel that it is better to wait and prove an early diagnosis of syphilis and then treat it, than to put the patient into a life-long quandary as to whether he ever has or still does harbor spirochetes in his body.

And what of the early diagnosis of pre-natal or congenital syphilis? The time to attack this problem is before the pregnancy develops: premarital Wassermann tests should be compulsory. Education of women and physicians of the value of the blood Wassermann early in pregnancy, and of anti-syphilitic treatment of the mother during pregnancy when syphilis is found to exist, will reduce the incidence of congenital syphilis from one baby in fifty to a negligible figure. When one must rely on umbilical cord blood Wassermanns and examination of the new born infant for the diagnosis of congenital syphilis, one is apt to be dealing with a thoroughly syphilized child, the infection having been present during intrauterine life for months, and as such is outside the scope of this paper.

## DISCUSSION

DR. ALFRED SCHALEK (Omaha): Dr. Cameron gave us a timely warning—that syphilis is spreading more, which is very surprising when we consider that our present methods of laboratory diagnosis and treatment are superior to anything we have ever had before. The reason must lie somewhere else. We know the public shies away from that subject. They think if they don't mention syphilis, it does not exist. I do not see how we doctors can improve that. But, I believe a great deal of blame belongs to the profession. Few keep up with the advancements and gains which have increased the better knowledge of syphilis.

Do you know that syphilis causes a greater mortality than any other disease—more than cancer and tuberculosis? That there are many fatal diseases caused by syphilis such as endocarditis, cirrhosis of the liver, encephalitis, apoplexy, locomotor ataxia, general paresis? Do you realize that the state asylums are filled with incurable cripples from syphilis, and that it costs the public an immense amount of money? All this could be stopped to a great extent if the profession would make an early diagnosis and treat these people at the earliest and most opportune time.

If the diagnosis of syphilis is made before it shows clinical symptoms, the chance of a cure is 100 per cent. After two or three years, it is 50 per cent. After ten years, syphilis is almost incurable.

Dr. Cameron said that if you have not the equipment to make the laboratory diagnosis to send the patient where it can be done. I do not believe he went far enough. If you cannot keep up the study of syphilis and consequently lack the necessary knowledge, do not put that patient in jeopardy of a life of misery and possible death. I am not talking for the specialists. The specialists are teaching all they know and trying to tell physicians and students what to do. It is not our fault if they fail.

Thank you very much.

DR. S. A. SWENSON (Oakland): The problem of syphilis is more of a city than a country problem. However, we do have cases in our country practice. The problem of diagnosis is more of a problem in the country than in the city. We do not have access to laboratories in the country, as a rule.

Dr. Schalek knows about a case of mine, almost twenty years ago—Dr. Bartholomew knows, also—in which I was sued because I made a mistake in diagnosis. Fortunately, I won the case. It wasn't a case of malpractice. Before that time I was not in the habit of having a Wassermann made regularly in cases where I suspected syphilis. Since then, I have always had a Wassermann made where I suspected syphilis. I think Dr. Bartholomew knows I have sent quite a few specimens of blood where the suspicion is not very great. If the Wassermann is positive, there is no great hurry about the diagnosis. Where there is somewhat of a hurry is in cases of a suspected chancre. I have had a number of cases where I was not sure whether I had a soft chancre or a real syphilitic chancre. I usually send those to the specialist for a darkfield illumination, so we may start treatment before we have secondary symptoms.

About two years ago, a woman came to me from a neighboring town. She was pregnant. There was absolutely no appearance of syphilis in her case. Her husband was quite a talker and he told me he had been married before and was divorced, and had had gonorrhea. So I said, "We had better check up and see if you have syphilis." The specimen I sent in was 3 plus. Then I sent a specimen of the expectant mother's blood and it was 4 plus. Of course antisyphilitic treatment was started in both cases. She went full term and had a baby that appeared perfectly normal. I lost track of the cases and letters have failed to bring the patients back. They owe me a little money, which is doubtless the reason. I should have reported them to the state board of health, but I haven't done so.

I had another case diagnosed by darkfield illumination, and treatment was started immediately. He had one treatment. I am not sure whether either case was cured. I hope they were.

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# THE MODERN MANAGEMENT OF CASES OF PERITONITIS*

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The rational management of any disease must be based on a sound and thorough understanding of the pathological physiology of the condition. Enough is known about the causes of peritonitis and the events which follow its inception to furnish a fairly firm foundation on which to build a system of treatment, yet there is much to be learned about the mechanism of the progress of the condition, the exact means by which it produces its profound toxemia, (which too often ends fatally) and especially effective means of combating these effects. Unlike most disease conditions which we encounter peritonitis is never primary (although it was once thought that "primary peritonitis" did occur) but is, of course, a complication of some more local disease within the peritoneal cavity. If we medical workers could have our way, we should always be called upon to treat the local disease within the peritoneal cavity before peritonitis had occurred and the tragic condition would never follow as a complication of our surgical attacks. However, such a state of affairs is indeed Utopian and no matter how expert we may be in diagnosis or how skilled in treatment we may approach this ideal condition but can never reach it. So we must seek better and better means of handling this dreaded complication and hope that our attempts at control will be successful.

Now I feel that we are prone to look upon peritonitis as a static condition, the picture of which we see at the bedside of the dying patient, at the operating table, or in the autopsy room. However, we all realize that it is a tremendously active condition which can fearfully progress or amazingly retrogress within a few hours' time, and that it is subject to infinite variation depending upon many anatomical, physiological and bacteriological factors. If we can but keep in mind at all times the active nature of the condition, it will serve to challenge our best diagnostic ability in picturing the pathology as it exists at the moment and our keenest judgment in aiding nature's combative efforts to the best advantage. The life of a patient with peritonitis is always worth fighting for, since recoveries as striking and unexpected as those seen in pneumonia are occasionally seen.

Let us consider now some of the factors which influence the course of peritonitis. The first of these is the speed, extent and duration of the peritoneal contamination. When a gastric ulcer perforates it commonly occurs suddenly, liberating a large quantity of infected material into the peritoneal cavity and the leak continues until the defect is closed surgically. Thus the prognosis of the treated ruptured gastric ulcer rapidly becomes worse each hour that closure of the defect is delayed until at the end of 12 to 18 hours it becomes very bad.

In like manner when an acutely inflamed appendix ruptures under the influence of purgation, the contamination is sudden, extensive from the escape of the large quantity of liquid feces under tension in the cecum, and continuous for at least a considerable time. On the other hand the acutely inflamed appendix rupturing under the conditions of a quiescent and relatively empty bowel usually produces a gradual, moderate and slowly progressive peritoneal contamination. In the latter event the prognosis is definitely better.

A second factor influencing the course of the peritonitis is the nature and virilence of the infecting organism. This is illustrated by the often observed fact that the prognosis is worse when a streptococcus is responsible than when the more foul and putrid colon bacillus is the causative agent.

A third factor is the general resistance of the particular patient, exemplified by the higher mortality rate from appendicitis in children and the aged than in young adults.

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Finally a fourth factor is concerned with the anatomical relations of the original focus. I have never heard a satisfactory explanation of the phenomenon but it has often been observed that a focus of infection in the pelvis will produce a milder and less frequently fatal peritonitis than a focus in the upper abdomen. The poorly developed omentum of children seems to be responsible in part for the greater mortality from peritonitis in them.

Having enumerated in a general way the important factors which determine the extent, severity and outcome of the condition let us review briefly the series of events which occur after the contamination of the peritoneal cavity. The peritoneal lesion may be divided into three stages, the stage of invasion, the stage of reaction and the stage of healing.

The Stage of Invasion: Dr. Poynter has shown us the routes of peritoneal absorption. If particulate matter or living bacteria are injected into the peritoneal cavity absorption into a lymphatic network beneath the peritoneum quickly occurs. From here the matter finds its way to a collection of lymphatics on the under surface of the diaphragm and thence up through a series of lymph nodes along the thoracic spine to the superior mediastinum and into the circulation. This absorption occurs so quickly that within a few minutes the particulate matter or bacteria can be recovered from the blood stream. Some of the material is absorbed by the omentum where it is retained for a considerable time and probably finds its way directly into the circulation. This absorption occurs before peritoneal action can develop and accounts for the rather profound symptoms which occasionally follow very quickly upon the invasion. Further absorption at about the same rate and by the same routes occurs during the later stages of the process, until the stage of healing or the process of localization is well under way. Clinically this stage may be characterized by a sudden rise in temperature and pulse, the results of sudden spreading infection, or if the contamination be massive by a systemic shock manifested by subnormal temperature, increasing pulse, sweating, low blood pressure and prostration.

The Stage of Peritoneal Reaction: Within a short time of the insult of contamination the peritoneum begins a vigorous defensive reaction. At first this is evidenced by a capillary engorgement, to be followed by the out-pouring a clear fluid from its surface. After a time the fluid coagulates and the coagulum adhers to the peritoneal surface where there is developing a leucocytic infiltration which thickens and roughens the peritoneal surface. The fibrinous exudate on these surfaces serves to glue them together and the process of localization of the infection by the formation of physical barriers is established. In the meantime, leucocytes have escaped from the peritoneal surfaces into the free fluid so that the clear fluid becomes at first cloudy and then frankly purulent. Now if the peritoneum has received a massive contamination involving all of its surfaces these events will proceed at about the same rate and in the same manner over the surfaces of the whole cavity, but if the contamination is less and continuous we may see the varying stages of the peritoneal reaction going on at the same time in different areas of the peritoneal surface.

Clinically this stage is characterized by continued high temperature, rapid pulse and leucocytoses. The abdomen presents muscle spasm, pain and tenderness from the irritation, and paralysis of the bowel is evidenced by distention, vomiting and decreased peristalsis.

The Stage of Healing: On about the third day the peritoneal reaction begins to show different characteristics. The stage of healing is ushered in by the appearance of fibroblasts in the areas of intense leucocytic infiltration. These appear where the process is still active around the collections of pus. In other areas where pus has disappeared the peritoneum begins to lose its roughened character and gradually returns to a normal state by a process of simple retrogression and not ciccatrization. The fibroblasts around the regions of pus collection proliferate rapidly and soon produce a true granulation tissue which forms a wall for the abscess. Except for its location this abscess is no different from an abscess in any other part of the body. Three things may happen to the abscess. It may perforate externally or into the bowel, drain and heal by ciccatrization. It may gradually be absorbed and heal in the same manner, or it may perforate into the now healed general peritoneal cavity and start the whole train of events over again.

Clinically we see in this stage a gradual decrease in the evidences of infection; the temperature, pulse and white blood count tend to return to normal, the abdomen loses the manifestations of irritation of the peritoneum, and the bowel regains its tone and action. If an abscess develops signs of sepsis occur and due to the presence of firm adhesions mechanical intestinal obstruction may occur.

Of course these stages are continuous one into the other and are therefore only arbitrary, but I believe they are useful not only in picturing what is going on beneath the abdominal wall but also because they help us to determine the indications for treatment. Death may occur at any time during the course of this condition from the profound systemic effects which it produces.

One of the most profound effects of the whole process is the paralysis or mechanical obstruction of the bowel which can occur at any time during its course. This results in a toxemia, apparently no different from that seen in pure intestinal obstruction, and in the untreated case is probably most commonly the direct cause of death, although the exact nature of the toxemia is little understood. Some of the most important features of treatment have to deal with this by-effect.

### PREVENTION

The only sure cure of peritonitis is its prevention. Of course every case cannot be prevented, but it is possible to do a great deal more than the much we have already done in this regard. I think it is fair to say that the majority of cases we see could have been prevented. In every case of peritonitis from appendicitis someone has theoretically made a mistake, either the patient or his family, the physician, or the surgeon, for we all now know beyond any doubt that cases of appendicitis operated upon early and without purgation are followed by an extremely low incidence of peritonitis. The medical profession as a whole is alive to this situation and the public a little less so, but we all are fallible and have mistakes to our credit. Other causes of peritonitis are less easily discerned in their focal phases; gastric ulcers will perforate almost without warning, accidents will happen giving rise to bowel perforations and occassionally an enteritis of virulent type will progress to peritonitis in spite of most careful management. Another group of cases of peritonitis are those arising as complications of abdominal operations. These are theoretically preventable but occur in the hands of any surgeon. Rankin and Bargen have produced a vaccine for preoperative intraperitoneal injection which offers something in the way of prevention of postoperative peritonitis especially following bowel resection. We have as yet had no experience with this vaccine.

### MEASURES OF VALUE IN PERITONITIS

In considering the actual management of cases of peritonitis I want to discuss briefly the different measures that are in wide use at the present time and finally to outline the treatment which we are using in our cases.

1. Rest—Rest, both general and local is indicated in the treatment of any infection, and for the same reasons in peritonitis. General rest is accomplished by confinement to bed, isolation from visitors, and the liberal use of sedatives especially the opiates. Local rest is accomplished by allowing little or nothing by mouth, by keeping the bowel empty, by avoidance of cathartics and enemas, and by morphine. Proctoclysis is largely discontinued by most surgeons in favor of intravenous fluid administration.

2. Position—Since the time of Murphy and Ochsner the Fowlers' position has been classical in the treatment of peritonitis. We have some doubt as to its importance but can adduce little conclusive proof for or against its value.

3. Morphine—The opiates have long been known to be of great value in the treatment of peritonitis. For years it was supposed that the effect was due to the paralysis of the small intestine but Thomas Orr has recently shown that morphine increases the tone and rythmic contraction of the small bowel. This serves to control distention and circulatory disturbance of the bowel.

4. Fluids, glucose and saline. The peritonitic patient usually comes to the surgeon dehydrated from fever, vomiting, and starvation and needs more than the usual amount of fluid. With the development of safe solutions, the intravenous route has become the most popular means of administration, being sure, simple, and comfortable. From 1000 to 4000 c.c. are commonly given daily. Glucose is always needed as food and stimulant and the amount to be given need only depend on the loss by spilling over in the urine; 5 to 10% solutions are most popular. The peritonitis patient has usually vomited a good deal and also by employing duodenal suction the gastric secretions are constantly being drawn off so that there has been and is still occurring a considerable chloride loss. This loss can readily be made up by the intravenous injection of sodium chloride solutions. The intravenous drip method by which a cannula is tied in the vein and fluid allowed to run in very slowly for twenty-four hours a day is a useful innovation.

5. Local heat. Heat applied to the abdomen, certainly makes the patients more comfortable probably by relaxing the muscle spasm of the abdominal wall. If it has any poulticing effect

within the abdomen this is desirable. We have often wondered if a hot pack on the abdomen would do a patient with appendicitis as much harm as it would good, for we have often observed that it permits making a better examination than does the ice-bag, and is much less likely to obscure the subjective symptoms. Certainly it is useful in the peritonitis patient.

6. Nursing. These seriously ill patients need the most diligent and skillful nursing, the importance of which could hardly be denied and cannot be over emphasized.

7. Temperature control. Hospitals in general are careful to instruct nurses to keep these patients warm enough, especially postoperative. We learned during the terrific heat of last summer that it is also important to keep them cool enough during hot weather. We had patients with peritonitis die after operation from heatstroke and others whose course was. we feel sure, influenced unfavorably by the heat. Cool sponging with water or alcohol should follow the least suggestion of too high fever during a "hot spell" and wrapping in blankets which is ordinarily good practice is to be avoided at such times.

8. Duodenal drainage. It has long been recognized that intermittent emptying of the stomach by a tube is useful in controlling the vomiting of peritonitis and intestinal obstruction but no great advantage otherwise seemed to result. Jejunostomy with continuous drainage has been strongly advocated by some surgeons, with the idea of controlling the distention and vomiting, but was never widely accepted. Ileostomy when definite evidences of mechanical obstruction are present has been widely used, but was never advocated as a commonly useful procedure, and is usually done only in extreme cases. Even cecostomy has been practiced by a few as a routine procedure in appendicitis with peritonitis. In 1932 Wagensteen described a method of decompressing the bowel in cases of intestinal obstruction by constant suction on a duodenal tube inserted through the nose. By this means it is possible to carry away all the pancreatic and liver secretions, all the gas and fluid which have been swallowed, and all the reversed flow intestinal contents before they reach the stomach. Even in complete mechanical obstruction the bowel can be collapsed and kept empty indefinitely. More recently Wangensteen and others have employed the method in peritonitis with striking results. The effect is to control the bowel distention and vomiting so that even though the infectious process proceeds, death occurs from the direct effects of the sepsis rather than from the effects of bowel obstruction, with its attendant toxemia. We had previously used jejunostomy in many severe cases of pertonitis but since using this method in the last year we have found no case in which the vomiting and distention could not be controlled and in which jejunostomy was indicated. It has the advantage over jejunostomy that it is safer and simpler, can be instituted without shock, and is more flexible and can be used and discontinued at will. The tube may be used preoperatively to reduce the distention and thus greatly simplify the operation.

9. Amphetin. We do not know to whom the credit should go because we have not been able to obtain any literature on the subject but a few years ago it occurred to some one that perhaps the reason that adhesions do not occur in the amniotic sac might be because of the presence of amniotic fluid, which perhaps has some adhesion preventing property. Experimental work was done to check this theory (but again we cannot find a reference) which was taken up by the Eli Lilly Company who began to market a substance Amphetin derived from the amniotic fluid of animals. For about three years we have been injecting this substance intra peritoneally at the time of operation in cases in which serious adhesions might be expected to follow. It is difficult to evaluate such a clinical trial, but we have come to feel that it does have a desirable effect. We have had no cases in which amphetin was used where serious plastic adhesions with bowel obstruction followed peritonitis. In a few cases a residual abscess has formed which until it was drained gave rise to evidences of intestinal obstruction. We are now using it freely in all cases of peritonitis. We have had no serious effects from its use but have noted a more marked temperature reaction on about the second postoperative day in the cases in which it has been used. This subsides in a day or two. Our records show that in 236 laparotomies in the last year including hernias it was used in 87 cases. In 15 instances it was used in frank cases of peritonitis with 3 deaths, and in 41 instances it was used in cases in which the peritoneum was potentially infected, with two deaths. At the present time we are using amphetin in practically all laparotomy cases.

10. Cololysate. The Eli Lilly Company also produces a substance which they call Cololysate which is recommended in peritonitis. It is in fact a bacterio phage made from cultures of B. coli, streptococci, staphylococci, and pneumococci isolated from suppurative lesions and pooled. We have of late been leaving 25 c.c. of this substance

in the peritoneal cavity after operation in cases of frank peritonitis, but it is too soon to draw any conclusions concerning its value.

11. Operation. Operation for peritonitis per se except to drain a localized abscess is worse than useless. A localized abscess should be drained as soon as it is evident. Early operation to control the leak in any perforated viscus is of course clearly indicated, and the early removal of an infected appendix or other focus of infection is universally advocated. Many years ago Murphy, Ochsner and others advocated deferring operation in certain cases of spreading peritonitis complicating appendicitis. This practice has had its adherents ever since that time but has not been commonly accepted by surgeons. In the recent literature the point has again been raised perhaps on a more rational basis, as well as on rather favorable statistical evidence. It has been our attitude that the focus of infection (the appendix) should be removed in all cases in order to eliminate the source of the infection, and that this should be done by an operation of as local a character as possible, performed in a minimum time. We accomplish this by using a small incision and disturbing the peritoneal contents as little as possible with retractors, packs, and manipulation. Drainage is of course provided at the operation.

### PROCEDURE IN HANDLING CASES OF PERITONITIS

When a case presenting evidences of peritonitis comes under our care we try to make a diagnosis of the original lesion. This is usually fairly evident, the greatest stumbling block being in the differential diagnosis between appendicitis and pelvic inflammatory disease. Cases of the latter are put on the regular postoperative regime without operation unless a pelvic abscess is present which we drain through the vagina. Other cases in general are operated upon immediately for the removal of the original focus or the closure of the ruptured viscus. If there is evidence of marked dehydration or shock operation may be deferred until intravenous fluids and glucose can be given, or if there is marked distention or continuous vomiting operation may be deferred until decompression by the duodenal tube can be accomplished.

At the time of operation the essential surgery is done with as much dispatch and as little trauma as possible, disturbing the general cavity as little as possible, removing the gross fluid by suction, and establishing drainage with rubber tubes. The wound is closed loosely and at the close of operation 200 to 300 c.c. of amphetin and sometimes 25 c.c. of cololysate are injected through the drainage tubes. These are tied or clamped for 6 hours and then opened to permit free drainage. Nitrous oxide and oxygen with a little ether are usually used for anaesthesia.

After operation the following measures are undertaken:

1. Fowlers' position.
2. Morphine sulphate Gr. ¼ hypo., every 3 hours, p.r.n. sufficient to keep the patient narcotized.
3. 500 c.c. 10% glucose in normal saline, twice daily.
4. Moist hot pack to the abdomen continuously.
5. A special nurse is employed when possible.
6. The patient is kept well covered and warm, or in hot weather the room is kept as cool as possible, using a light covering and sponging if temperature rises.
7. We insert a special weighted duodenal tube through nose and apply constant suction. Water may be allowed freely as soon as the patient is awake and the duodenal suction is working. (The water is immediately drawn back into the bottle and the drinking increases the patient's comfort).

The patient is then observed closely. Stimulants are used if indicated by a poor general condition. The abdomen and pelvis are examined frequently for evidences of a localizing process which is also suggested by a rising temperature, pulse and leucocyte count following an initial fall. The drainage tubes are loosened on about the fourth day and removed usually by the seventh. Any localized abscess is drained by the shortest and safest route, as soon as it is evident.

Under this regime the patient is kept comfortable and quiet from the beginning. If he succumbs he does so comfortably with a rising temperature and pulse and a profound toxemia. Usually the general condition appears improved within a few hours, in two or three days the pulse and temperature begin to fall and some gas is passed by rectum. As soon as the crisis is passed the tube is clamped at intervals and fluids are given by mouth to test the patient's ability to handle them and when this is demonstrated the tube is removed.

These are the measures we have found most useful in handling cases of peritonitis. They serve as valuable aids in controlling the symptoms and secondary manifestations, but the problem will not be satisfactorily solved until we have at our command specific means of controlling the infection.

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# CLINICAL WORK AT THE NEBRASKA ORTHOPEDIC HOSPITAL

## A Report of the Regular Friday Morning Clinic, July 19, 1935.

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There have been a number of requests recently for information regarding the exact character of the work now being done at the Nebraska Orthopedic Hospital. We have found that it is not generally understood that during the recent depression years the demands upon the hospital have been extremely heavy. A large number of patients have found it necessary to seek relief at this State Institution instead of resorting to private clinics or to their usual medical and surgical attendants as had been customary in years gone by.

For this reason it has been thought proper to prepare a complete report of one Friday morning clinic with the idea of conveying to the profession of the State a correct idea as to just what the work consists of at the present time. For those who are not familiar with the routine at the Nebraska Orthopedic Hospital, it may be stated that for many years it has been customary to have a Tuesday morning operative clinic at which surgical operations are done, (usually three to five), and to have a Friday morning general clinic at which minor operations are done, plaster of Paris casts and braces are applied, new patients are examined, and other patients, both those in the hospital and those returning after a period of absence from the Hospital, are seen and advised regarding their further care.

At these Friday morning clinics from 25 to 50 patients are usually seen during the period from nine o'clock until noon. At this particular clinic on Friday morning, July 19th, there were 34 patients who were brought to the examining and operating room and dealt with as indicated in the following brief outline.

The total number of patients admitted to the hospital has now reached approximately five thousand. During any year there are about 400-500 admissions, 250-300 operations, 1200-1500 examinations, casts and braces put on. The percentage of patients cured has been about 60%, improved 25%.

### CHRONIC OSTEOMYELITIS RIGHT FEMUR

No. 1. P. H., Alliance, Nebraska. Admitted in 1932, with a severe osteomyelitis of the right femur and complete destruction at that time of the head of the femur. He was given emergency drainage and during 1932 had two plaster of Paris casts applied. His condition improved very slowly and in 1933 he had to have a secondary operation with removal of the head of the femur after which he made more rapid progress as to recovery from his septicemia. During 1933 he had three plaster of Paris casts applied and four dressings in compliance with the Orr method which is used in all acute and chronic suppurative bone cases. On March 16, 1934, he was up walking about with a brace and crutch and in October was permitted to return to his home. He now returns on July 19, 1935, with a small draining sinus from the old hip scar. X-ray examination shows sound ankylosis of the hip with the parts in good position. There is no evidence of bone abscess or other bone infection. The small abscess which is now draining in the old scar is a soft part abscess which has been re-opened and he is to remain in the hospital in bed for a week or ten days with the expectation that he will be healed in that time.

### CONGENITAL DISLOCATION OF HIP AND TRAUMATIC ARTHRITIS LEFT KNEE AND LEFT HIP

No. 2. P. D., Lincoln, Nebraska. Was admitted at the age of 12 in April, 1935, with an old congenital dislocation of the left hip. In patients of this age reposition of the hip is seldom attempted. On May 14, 1935, we did an osteotomy similar to the Lorenz bifurcation operation to give compensatory lengthening to the limb and greater stability to the hip. She was taken out of cast and a caliper walking splint put on on July 19, 1935, with instructions to wear the splint for protection of her knee and to relieve her limp and strain. She should walk well later without splint and with much greater comfort and less disability.

### ACUTE HYDROCEPHALUS

No. 3. B. W., Palmyra, Nebraska. This patient had just been admitted on account of acute hydrocephalus. The condition is not extreme and it is expected that he can be relieved by a series of aspirations of the cerebral ventricle and possibly a spine puncture.

### INFANTILE PARALYSIS WITH DEFORMITY OF SPINE AND LOWER EXTREMITIES

No. 4. H. D., Franklin, Nebraska. This patient was admitted to the hospital at the age of 3 years. He was very badly crippled and deformed as result of infantile paralysis when he was a baby. He was entirely unable to stand or walk when admitted. From 1932 to 1934 he had several tendon, muscle and one bone operation to straighten out both lower extremities. He wore numerous casts to correct a severe paralytic curvature of the spine. In November, 1934, he was permitted to return home. At that time he was able to be up and about and walking fairly well with braces. There is still severe paralysis of both lower extremities and moderate paralytic spinal curvature remaining. On July 19th he was readmitted for the application of new braces which are now well fitted and he is walking quite well. This patient is one of those who would never have walked without this extensive corrective surgical and manipulative treatment and the application of proper braces and splints. He is quite able to get about and attend school, but will require supervision and care for a number of years in order to obtain the maximum of benefit. He has had continuous physiotherapy in the way of massage, but is such a case as should have institutional supervision, hydrotherapy, correction of splints and braces and occasional corrective casts for a number of years.

### INFANTILE PARALYSIS RIGHT LEG WITH SHORTENING AND DEFORMITY

No. 5. C. F., Erickson, Nebraska. This boy was admitted at the age of 15, with a severe paralytic leg deformity, the result of infantile paralysis in 1928. His right leg was 2½ inches shorter than the left. On January 29, 1935, he had a leg lengthening operation on the right leg below the knee. This is one of the very gratifying patients of this kind we have had and in whom we have been able to gain almost 2 inches of length for his crippled leg. Now on July 19, 1935, he is walking about with a right caliper splint. He handles himself very well, his legs appear to be almost equal in length although there is still somewhat less than an inch of shortening. His appearance and the use of the leg are very greatly improved.

### INFANTILE PARALYSIS WITH DEFORMITY

No. 6. L. T., Kearney, Nebraska. This boy was admitted at the age of 9, with deformity and disability the result of infantile paralysis which he had in 1932. He had corrective cast and brace, but his parents refused to have him operated upon when he was here in 1934. On January 29, 1935, however, he had a leg lengthening operation and now he is being re-admitted for a tendon lengthening operation at the knee and for arthrodesis of the ankle. This operation will be done within the next week or two and after that his deformity will have been almost entirely corrected and he will get about well with a correct splint or brace, which he may be able to discard entirely after a time.

### INFANTILE PARALYSIS LEFT LEG, WITH DEFORMITY

No. 7. G. T., Clay Center, Nebraska. This boy was admitted at the age of 10, with deformity and disability the result of infantile paralysis at the age of two years. On May 28, 1935, he had a tendon lengthening operation of the left Achilles tendon. This entirely corrected the deformity of the foot. On July 19th the cast is being taken off and he is to begin walking in a correct below the knee brace and with crutches. His deformity has been almost entirely corrected.

### INFANTILE PARALYSIS RIGHT LEG WITH DEFORMITY

No. 8. H. S., Bayard, Nebraska. Age 10. Admitted to the hospital in April, 1935, on account of an infantile paralysis deformity of the right leg (paralytic club foot) since the age of three. She was operated upon on April 30, 1935, at which time the right Achilles tendon was lengthened, the foot corrected to a right angle. On July 19, her second cast has been removed and a short brace has been put on below the knee. She is walking without a limp and appears to have an almost perfect result.

### CONGENITAL DISLOCATION RIGHT HIP

No. 9. E. A., Amherst, Nebraska. This patient has just been admitted at the age of 6. She has a dislocation of the right hip which has existed since birth. The head of the femur is displaced upwards and backwards on the ilium so that even at this age she has almost 2 inches of shortening of the limb. In order to afford a better opportunity for subsequent reduction of the hip, this child is being placed in a double plaster of Paris spica cast with pin traction through the femur and the limb pulled downwards as far as possible in the plaster cast. After a period of from 4 to 8 weeks of strong traction upon the limb, a reduction of the dislocated hip will be attempted.

### SPASTIC PARALYSIS

No. 10. B. B., Lincoln, Nebraska. This child was admitted at the age of 12, with mild spastic paralysis. She has been treated by plaster of Paris casts and braces and was discharged some time ago greatly improved. At the present time she walks with no limp whatever. She now returns to the hospital in very poor condition with a history of having lost 25 lbs. in weight during the past three or four months. She has had some afternoon temperature. Dr. Hancock of the City Clinic has been called in and will take her in charge for observation and treatment with the probability that her present condition is that of a tuberculous affair in the chest.

### INFANTILE PARALYSIS WITH SHORTENING AND DEFORMITY

No. 11. C. H., Scottsbluff, Nebraska. This patient was admitted at the age of 9, on account of infantile paralysis of the right leg with severe shortening of the limb. Operation for leg lengthening of the right tibia and fibula was done on April 9, 1935. A gain in length of about 1½ inches was made. On July 19th she was given another anaesthetic to improve the position of the right foot. The right foot and leg were replaced in a cast and she is to begin walking on a crutch. The appearance and use of the leg have already been greatly improved by the additional length gained and it appears that both deformity and disability will be considerably relieved when she can begin walking in her brace in about four to six weeks from now.

### SPASTIC PARALYSIS

No. 12. D. D., Lincoln, Nebraska. This patient has just been admitted at the age of 1½ because of a mild spastic paralysis affecting all of the extremities. There is not enough spastic contracture to require surgical treatment, but a special form of brace which we call an "A" brace is being applied to control the trunk and limbs in a correct and relaxed position. This brace will be worn and mild massage and other physiotherapy will be employed till such time as the application of walking braces or when the patient is able to walk without braces has arrived.

### CONGENITAL CLUB FEET AND HANDS—CLEFT PALATE

No. 13. R. R., Chadron, Nebraska. This patient was admitted January 12, 1933, at the age of one year, weight eleven pounds with congenital club feet and hands and a cleft palate. The feet and hands have been under treatment—several operations have been performed and nearly correct postion has been obtained. At the present time an "A" brace is being applied to maintain the correction which has already been made and a program of brace wearing and physiotherapy will be carried out until the patient is ready to walk. At the present time she weighs thirty-three pounds, looks fine, talks well and appears to be in first class mental and general physical condition.

### CONGENITAL CLUB FEET

No. 14. J. L. R., Beemer, Nebraska. This patient was admitted at the age of 4 months, on account of double club foot. Three corrective procedures have been carried out on May 24, June 7th, July 19, 1935. The feet are now in nearly correct position; braces and splints will be worn until the patient is ready for walking, at which time special braces and shoes will be put on.

### INFANTILE PARALYSIS RIGHT LEG, SHORTENING AND DEFORMITY

No. 15. D. D., Aurora, Nebraska. Was admitted to the hospital originally at the age of 14, early in 1934. She had infantile paralysis when a small child and the left leg was badly paralyzed and 2½ inches shorter than the right. On August 7, 1934, a leg lengthening operation was done on the left tibia and fibula. Strong traction was made and a good gain in length of nearly 2 inches was made. On December 15, 1934, she was sent home walking in a caliper splint and walking very well. She returns on July 19, 1935, for observation, for repair and re-adjustment of her brace and is permitted to return home at once. A very substantial gain in appearance and use of the limb has been made. This girl completed her grade school education while in the hospital and was given an eighth grade certificate.

### INTERNAL DERANGEMENT KNEE JOINT—INJURY TO INTERNAL SEMILUNAR CARTILAGE

No. 16. L. H., Lincoln, Nebraska. This girl was admitted at the age of 15, in May, 1935. She had an injury to the left knee with some damage to the internal semilunar cartilage and chronic arthritis. Operation was done on May 28, 1935, at which time the internal semilunar knee cartilage was removed and she was placed in a plaster of Paris cast. She has been somewhat slow about resuming full function of the knee and on July 19 she was given an anaesthetic and the knee manipulated. A full range of motion was easily obtained. This patient has been very non-cooperative and has not only refused to use the knee herself but has run away at times when treatment by physiotherapy was to be employed. However, she has a normal looking and apparently useful knee and should make a complete recovery.

### SPONTANEOUS DISLOCATION RIGHT HIP FOLLOWING HIP DISEASE

No. 17. L. H., Cortland, Nebraska. This patient was admitted at the age of 2½ with a dislocation of the right hip. This dislocation was due to an acute osteomyelitis or arthritis in the right hip and the dislocation was spontaneous in character. The hip condition followed pneumonia when she was six months old. She has been treated by casts and manipulation and skeletal traction in cast and the hip is now in nearly normal position. She is now permitted to be up and walking about with well fitting shoes but no brace at present. She will have swimming exercises, massage, marching and a brace for a time if necessary for limp or for protection. She will be brought to the observation clinic every Friday morning for a time.

### FRACTURE RIGHT TIBIA AND FIBULA WITH SEVERE DEFORMITY

No. 18. P. N., Wilsonville, Nebraska. This patient was admitted at the age of 8, in January, 1935, with a fracture of the right tibia and fibula and severe deformity. On January 15th he was given anaesthetic and the limb forcibly manipulated and correct line and length obtained by means of a pin through the lower femur and the heel and a double plaster of Paris spica put on. The patient's recovery was delayed because of a moderate slough on the bottom of the foot, the result of pressure in correcting the equinus deformity that existed at the time of his admission. This is now entirely healed and on July 19th the final cast is being taken off and a shoe and brace is being put on. He will be able to return home within a few days. His result as to the leg fracture is now entirely satisfactory.

### INFANTILE PARALYSIS OF SPINE AND LOWER EXTREMITIES

No. 19. C. C., Chadron, Nebraska. Was admitted to the hospital at the age of 11. He had infantile paralysis when he was two years old. On October 19, 1934, his first operation was performed, at which time an arthrodesis of the left ankle was done. A manipulative and stretching correction of the hip and knee was carried out at the same time and position was maintained with a pin through the tibia and fixed traction in a plaster of Paris cast. On December 11, 1934, on account of his severe paralytic spinal curvature, a spine fusion was done carrying a bone graft from the right leg to the lower dorsal and upper lumbar portions of the spine. On January 11, 1935, all the casts were changed, the position of the left foot and heel were improved and a new cast was put on. On May 14, 1935, a lengthening of the left leg was done by osteotomy of the tibia and fibula on the left side. On July 19, 1935, all of the casts are off and a spine brace is being put on and adjusted. The position and appearance of the spine has been very greatly improved. He is now going to be up and about with a short cast on the left leg. A very great gain in this patient's appearance as to the correction of deformities and stabilizing of his spine and lower extremities has been accomplished.

### TUBERCULOSIS OF THE HIP

No. 20. B. M., Alliance, Nebraska. This patient was admitted to the hospital at the age of 13 on account of tuberculosis of the hip. She was admitted in a single spica right hip plaster of Paris cast which she said was the third that had been applied. The entire right hip and lower extremity were very sensitive and could not be moved without causing considerable pain. Removal of the cast and x-ray revealed that the right hip had been practically entirely destroyed. The appearance was that of a hip destroyed by an acute septic process rather than by a tuberculous disease. The limb was firmly fixed in abduction and external rotation so that her leg could not be placed in correct length or line. Under anaesthetic she was pulled down to full length and correct position, the limb was rotated internally and a new double plaster of Paris spica was put on. In this case it is expected that the patient will recover without further damage but secondary operation for removal of the head of the femur may have to be done. In some such cases the head of the femur becomes a sequestrum and healing will not take place until the head of the femur has been removed.

### MULTIPLE CHRONIC OSTEOMYELITIS

No. 21. M. S., Nemaha, Nebraska. This patient came to the hospital several years ago with a very severe multiple osteomyelitis. Her primary lesion was in the right leg below the knee. Before coming to the hospital, however, she had secondary abscesses in both arms, in the left clavicle, and several soft part abscesses. She was very sick for a long time and only began to improve substantially toward the end of her first year in the hospital. After about two years with repeated operations, plaster of Paris casts, and infrequent dressings by the Orr method she was healed and permitted to go home on March 12, 1933. She remained at home until April 25, 1935, when she returned with an abscess in the left shoulder. This was drained and she recovered so that she was permitted to go home again after about a month. On July 5, 1935, she returned again with a small abscess in the old scar at the left knee. This was incised and now, July 19, she is entirely well again. During this girl's long stay at the hospital, she spent most of her time in extensive plaster of Paris casts and in bed. Notwithstanding all this, she did high class school work in several grades and finished with honor grades in the Lancaster county eighth grade examinations. This patient is a very striking illustration of the advantages of the immobilization and infrequent dressing method. She has recovered from a condition which we used to consider almost certainly fatal. Her general health is now excellent and except for her many scars, she makes a splendid appearance and gets about very well.

### CONGENITAL CLUB FOOT

No. 22. D. B., Litchfield, Nebraska. This patient was admitted at the age of 5, with a moderate equinovarus of one foot only. The foot was manipulated and kept in plaster for a time and a special shoe and brace are now being applied. For the convalescent stage in these patients, we use what we call an inside iron, outside ankle strap, and outside wedge on the sole of the shoe. In some of these patients, as in this case, there is a compound deformity with a secondary rotation of the heel after full correction of the front part of the foot. The patient walks very well, however, and the foot appears to be flat on the ground.

### VARUS DEFORMITY BOTH FEET

No. 23. M. E., Nebraska City, Nebraska. This patient was admitted at the age of 4, with a slight toeing-in of both feet. No surgical treatment or manipulation was necessary in this case, but she has been given corrective shoes with an outside wedge on the front of both shoes. This has the effect of throwing the front part of the foot to the outer side, thus correcting the attitude of the lower extremities. The alteration in the weight bearing position of the foot also relieves knee strain and other disabilities that such patients have. This is the reverse of the correction required for such patients with flat foot—when the inside wedges are employed on the soles or heels of the shoes, or both.

### SCOLIOSIS

No. 24. P. F., Falls City, Nebraska. This patient was admitted at the age of 13, with a moderately severe structural scoliosis. He was treated in one corrective plaster of Paris jacket only and is now in a spine brace. During the intervals between school years, he is now being given a second corrective plaster of Paris jacket, which will be worn till time for re-entering school in September, when the plaster jacket will be taken off and a repaired and refitted spine brace will be put on.

### MYELITIS OF UNKNOWN ORIGIN AFFECTING THE TRUNK AND LOWER EXTREMITIES

No. 25. F. B., Dorchester, Nebraska. This girl comes to the hospital at the age of 13 in June, 1935, with a rather obscure and somewhat atypical irregular weakness of the muscles in both lower extremities. The paralysis is not exactly that of a poliomyelitis, but more that of a diffuse myelitis affecting the lumbar area in the spinal cord. She walks badly with a severe limp on both sides and with difficulty in balancing and in controlling the movements of both lower extremities. There is some trunk weakness, but the upper portion of the trunk and the arms are in fair condition. There is no family history of similar paralysis and it does not seem to be one of the hereditary types. In this case the paralysis came on following measles eight months ago. Several members of the family had measles, but there were no paralytic complications in any of the others. This patient was unable to get up and about at all for nine weeks and has never walked well. At our suggestion, a long caliper splint is now being applied on the left leg and a below-knee outside iron with inside ankle straps on the right. These braces are being fitted today and with crutches she immediately walks better and is safer as to the danger of falling and injuring herself. The braces will be worn for a period of months and she will be returned at occasional intervals on Friday mornings for observation and supervision.

### SPASTIC PARALYSIS

No. 26. K. H., Scottsbluff, Nebraska. This patient was admitted at the age of 4, with moderately severe spastic paralysis. On April 17, 1934, double obturator neurectomies were done; there was also an operation on the right arm because of severe pronation and contraction of the right arm and hand. In this case, the pronator radii teres was transferred so as to convert this muscle into a supinator. The hand was turned over and kept in plaster of Paris casts for several months. The child went home on May 3, 1935, with a leg brace and the arm considerably improved. Now, in July, 1935, all braces are being taken off and there is very definite improvement in the use of the arm and the patient's gait. The patient will require some supervision and perhaps further plaster of Paris cast or brace treatment later on, but is sufficiently improved to remain at home for a period without active treatment at this time.

### INFANTILE PARALYSIS LOWER EXTREMITIES

No. 27. E. W., Chadron, Nebraska. This patient was admitted about two years ago at the age of 12, with severe infantile paralysis deformities of both lower extremities. She had her attack of poliomyelitis at the age of five, and her deformity and disability have been severe and in some respects progressive since that time. On July 3, 1934, operation was done for the lengthening of her left leg, both tibia and fibula. In December of the same year additional lengthening was done of the femur in the same lower extremity. A total gain in length of about 2½ inches has been obtained. She went home in April, 1935, but has now returned for a final surgical procedure and arthrodesis of the left ankle. When this has been accomplished she is going to have a very well appearing and very useful lower extremity. The great gain in length in her limb and the stabilization of her left ankle will give her a leg for which a minimum of brace treatment will be necessary and a maximum of function without mechanical support will have been obtained.

### CONGENITAL SHORTENING OF THE LEFT FEMUR

No. 28. A. F., Scottsbluff, Nebraska. This patient was admitted at the age of 11, with extreme congenital shortening and deformity of the left leg. He is now 11 years old and nothing has been done prior to coming here in the way of surgical or brace treatment. X-rays of the two limbs show a comparative shortening of about 7½ inches of the left femur. The first treatment was by manipulation under anaesthetic, abduction of the left hip, and pin traction upon the limb so as to make as much gain in length as possible. On February 19, 1935, an osteotomy of the left femur was done near the trochanter and the limb was pulled down and abducted by means of a pin through the femur at the knee and fixed traction in cast put on. Since then a cast has been worn with an artificial pilon so that the patient has been able to walk about in this temporarily adjusted limb. At the present time, on July 19th, the cast is being removed and an operation will be done to stabilize the left foot and ankle, after which with a suitable apparatus the patient will be able to walk with a fair degree of satisfaction. Subsequent operations and treatment will be necessary over the next year or two until the maximum of benefit can be obtained.

### PIGEON BREAST

No. 29. G. C., Havelock, Nebraska. This patient was admitted about 3 months ago with a moderately severe pigeon breast. A plaster of Paris jacket was put on May 24, 1935, and has been worn since that time. Now the cast is being taken off and a spine brace with a special metal pad over the chest deformity is being applied.

### SPASTIC PARALYSIS

No. 30. C. F., Gothenburg, Nebraska. This patient was admitted in January, 1934, at the age of 5, with spastic paralysis. The patient was first treated in a plaster of Paris double spica cast with the legs fully abducted and all spasticity and adduction contracture thereby overcome. This was followed in March by an "A" brace which he wore until November and then sent home in the brace. He now returns for the first time and the brace has been repaired and refitted. He is making good progress, but is not yet able to walk without assistance. His treatment will have to be carried out with subsequent walking braces until all the improvement possible has been accomplished.

### SPASTIC PARALYSIS

No. 31. D. L. H., Lincoln, Nebraska. Age 7. This patient was admitted recently with spastic paralysis and is now being re-admitted for obturator operation on the right side only, for abduction in plaster of Paris cast and subsequent brace and splint treatment.

### RIGHT CLUB FOOT

No. 32. B. S., Bruning, Nebraska. This patient was admitted at the age of one year with right club foot. The patient has had 5 anaesthetic manipulations and corrective casts. Full correction has now been obtained. A special shoe with an iron and brace was applied in May, 1935, and this has now been adjusted, repaired and refitted and the patient is able to stand up with a straight foot and leg. He is approved for return home at this time.

### SCOLIOSIS

No. 33. I. N., Chadron, Nebraska. This patient has been under treatment for nearly a year with three plaster jackets on account of severe scoliosis and deformity. On June 25, she was operated upon for spine fusion and we had the unusual and absolutely new experience of having the patient develop a lower limb paralysis the next day after operation. This is assumed to be due to pressure from hemorrhage in as much as no other complications appeared. 48 hours after operation the spine operation area was reopened, a laminectomy was done and considerable amount of blood effusion and pressure was observed. The graft which had to be taken out for the laminectomy was replaced and the wound was closed again. The patient has made a perfect recovery from the two operative procedures and on July 19 the operative wound is found to be soundly healed and everything appears to be normal as far as the operation is concerned. A slight amount of return of reflexes and sensation is beginning to appear and it is hoped that an entire recovery will occur. The exact nature of the complication in the spinal cord has not been ascertained. The patient's general condition is excellent at this time and as far as can be observed a good recovery may be expected.

### TUBERCULOSIS OF THE SPINE. PSOAS ABSCESS

No. 34. J. S., Winnebago, Nebraska. During the past few years about 25-30 children have been admitted to the hospital from the Indian reservations near Homer and Winnebago. Most of them have had tuberculous bone or joint lesions or draining tuberculous lesions with mixed infection. This boy was two years old when admitted on March 2, 1932. He was said to be the hereditary chief of his tribe and has always been called "Chief" at the hospital. He had a very large cold abscess in the left lumbar region. He had begun to limp in December, 1931, and had been getting worse steadily. Immediately upon arrival at the hospital (March 4) he was put into a double spica body cast and aspirations of the abscess begun. In July, however, he began draining near the left hip, but he had begun to gain in weight and appearance. He was put in plaster for 2½ years, until November, 1934, and has recovered, all sinuses are soundly healed. He looks well and has finished the first grade in school. He is being sent home, but will return for inspection in 2-3 months.

The Friday morning clinics at the Nebraska Orthopedic hospital have now been conducted regularly and the writer has been present at most of them for thirty years (since the hospital opened on October 1, 1905). The clinics are arranged by Dr. F. A. Alcorn, assistant surgeon and resident superintendent, at the hospital for the past four years.

I wish to acknowledge the assistance at the clinics of the following members of the staff at the hospital:

Mrs. Freda Penfold, head nurse.

Miss Robbins, surgical nurse.

Dr. and Mrs. Ferciot, special assistants.

Miss McGrew, assistant nurse.

Miss Ganser, physiotherapist.

We have also the volunteer assistance of my own associates, Dr. Fritz Teal and Miss Gertrude Krausnick.

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## ECTOPIC PREGNANCY: OBSERVATIONS IN ONE HUNDRED AND THREE CASES SEEN IN PRIVATE PRACTICE

In the course of a general surgical practice Chester M. Echols, Milwaukee (*Journal A. M. A.*, Dec. 1, 1934), has operated on 103 cases of ectopic pregnancy. All the patients were white women and all were private patients. The predominant age was from 25 to 35 years; the oldest patient was 43. Four cases were twin pregnancies; all unilateral. There was no case of concurrent intra-uterine and extra-uterine pregnancy. Two were abdominal pregnancies of from six to seven months. Ovarian pregnancy, interstitial pregnancy and lithopedion formation were not encountered. In no case was there a rupture into the broad ligament. In one instance the pregnancy was in the rudimentary horn of a bicornate uterus. One patient subsequently became pregnant in the remaining tube. None of the patients died. With the exception of one woman, in whom a pelvic abscess developed and who was in the hospital five weeks, all were able to leave the hospital in from eleven to fourteen days. The author discusses the observations suggested by his series of 103 cases under the following headings: incidence, previous gonococcic infection, previous operations and abortions, age and social status, sterility, menstrual anomalies, tubal abortion and tubal rupture, abdominal pregnancy, multiple pregnancies, pregnancy in a rudimentary horn of a bicornate uterus, recurrence, diagnostic errors, operative measures and mortality.

# THE CANCER HOUR

**DR. JAMES F. KELLY,**
Chairman of the State Cancer Committee, in the chair.

Dr. James F. Kelly, (Omaha): I am sure you are aware of the fact a Cancer Committee was appointed by the House of Delegates a year ago. The Committee has hardly started its work, but the first presentation they will make is through this Cancer Hour. We thought it would be of practical help to present the three subjects we have prepared for today.

## THE SCHILLER TEST FOR CANCER OF THE CERVIX*

EARL C. SAGE, M. D.,
Omaha, Nebraska.

It is the earlier pictures of malignancy of the cervix with which the profession should learn to familiarize themselves, and the Schiller test is again presented to freshen this conception of the pathology of uterine cancer. Two-thirds of these cases start on the vaginal portion of the cervix, one-third of these may be found in the cervical canal. Schiller's test is a method of differential staining to the gross lesion on the cervix which helps make the early diagnosis of cancer in this location.

The educational campaign against cancer is bringing an increasing number of cases to the physician in an early, favorable stage of the disease; and the physician must be able to do his part by recognizing suspicious lesions more and more. As cases come earlier, the microscope will be called upon to make, rather than to merely confirm, the diagnosis of uterine cancer.

The physician who in his mind associates this disease with a cauliflower growth of the cervix, or with a foul, excavated crater ulcer is the one we want to impress with the methods recently advised for recognition of early cancer. Furthermore the physician who is on the alert for cancer in its early curable stage will find many lesions which are not cancerous but which are of this distinctly predisposing type.

In examining these cases one should employ a definite routine entailing the following steps:

1. Customary bimanual abdomino-vaginal and abdomino-vagino-rectal examination.
2. Speculum examination of the vagina and cervix followed by:
   a. Colposcopic study of the cervix.
   b. Staining reaction of the cervix to Lugol's solution (Iodine Test).
   c. Exploration of the endocervix.

The physician's training and equipment determine what he may properly do during an office examination. The colposcope is an expensive instrument, ordinarily not available, and the interpretation of the enlarged images afforded by the instrument requires experience so that normal variations may be properly appreciated.

The Schiller Test. or iodine test, is inexpensive; always available, readily performed, and requires little experience. This test is done as follows: The cervix is exposed as in any speculum examination and excessive secretion is gently wiped away with cotton. A cotton pledget dripping with Lugol's solution is applied repeatedly to the cervix until it takes on a deep chestnut brown color. The iodine solution can also be sprayed on with an atomizer. It requires several seconds for the color to develop. Pathologic epithelial areas, in particular cancer epithelium, according to Schiller, take no stain or at most assume a faint yellow color and therefore stand out in distinct relief.

The rationale underlying this test, is based on the observation of Warburg that cancerous tissue has a higher sugar metabolism than normal tissue and when stained for glycogen, usually show it is absent. Glycogen in living tissue stains with iodine. Using these observations Schiller demonstrated that the cells belonging to areas of probably beginning cancer, as well as the grossly normal, but cytologically cancerous epithelium does not give the dark brown iodine color reaction as does the normal epithelium.

It should be emphasized that non-staining areas are by no means always due to changes of probably beginning cancer, but may represent areas that react differently to the iodine test such as:

1. A superficial erosion—this area does not stain.
2. A deep erosion where all the epithelium is lost—may take on a modified brown color.
3. Columnar epithelium that has grown out from the cervical canal forming the so-called familiar vermillion zone about the external os retains its red color and does not stain with iodine.
4. A recently healed area of inflammation does not stain.
5. It is also important to remember that a bona fide erosion when all the epithelium is lost, or any other type of ulcer, malignant or otherwise, does not stain brown.

The iodine test, therefore, is of value in defining certain epithelium covered areas of the portio that deviate from the normal, probably beginning cancer being one of these. The test has its distinct limitations and if not applied with discrimination and interpreted with due reserve will lead in the hands of the uncritical enthusiast, too much unnecessary alarm, unjustified "tinkering" and undeserved discredit for a helpful procedure.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

In cases of doubt it certainly aids the physician in selecting the suspicious area from which to take the biopsy and have the tissue removed for histological examination.

## RECENT DEVELOPMENTS CONCERNING TUMORS OF THE BREAST WITH SPECIAL REFERENCE TO TRANSILLUMINATION*

HERBERT H. DAVIS, M. D.,
Omaha, Nebraska.

To the general practitioner the most important factor about breast tumors is their diagnosis. It is only by early diagnosis that we can institute early treatment, which is necessary to save the life of the patient if the tumor be carcinoma. In addition to the history of the growth, inspection and palpation of the breast, there have been two other methods developed in the last few years as aids to diagnosis. I refer to transillumination of the breast and to x-ray pictures.

For many years transillumination has been used as an aid in differentiating between hydrocele and solid tumor of the testis. For a long time, also, the otorhinolaryngolosists have used transillumination to aid in the diagnosis of sinusitis. It was only in 1929 that Max Cutler began using transillumination of the breast for diagnostic purposes.

This examination is made in a totally dark room with the patient standing or sitting. A light is then placed under the breast so that it shines up through the breast. A Cameron light or an ordinary strong flashlight may be used. With gentle pressure upon the upper surface of the breast so as to press it against the light, the translucency is increased. The light is moved around to different areas which are inspected in turn. The tail of the breast is transilluminated by placing the light under the axillary fold. The normal breast should be examined first as the standard for comparison.

Tissues vary in their translucency. Fat is highly translucent, whereas fibrous tissue is less so. The breast with chronic mastitis is considerably less translucent than the normal breast. Solid tumors are rather opaque to transillumination. The greatest opacity shown by transillumination of the breast is that of blood. Therefore, it is noticed that the veins stand out very prominently. On the other hand, a cyst containing clear fluid is translucent. If, however, the cyst contains blood, it is very opaque. If it contains milk, as in a galactocele, it is quite opaque, and if the cyst contains pus or cloudy fluid, it may be as opaque as a solid tumor.

Any single, solid tumor of the breast should be considered carcinoma until proved otherwise by a biopsy. It is not unusual for a deep seated cyst to feel exactly like a solid tumor. The only way this can be differentiated is by transillumination, it being translucent while a solid tumor is opaque. If it is translucent beyond question, it will be unnecessary to operate. On the other hand, I recently had a case in which the tumor seemed to fluctuate like a cyst. However, transillumination showed it to be opaque. At operation it was proved to be a soft fibroadenoma.

A hematoma may be firm and hard resembling a carcinoma. There will be a history of a trauma, but the frequency with which trauma precedes carcinoma of the breast is well known. A hematoma following trauma may in some cases cause even a definite dimpling of the skin. On transillumination, the opacity of a hematoma is much more intense than a carcinoma. It varies in intensity in different parts corresponding to variations in the amount of unabsorbed blood in the different parts of the hematoma. The edges are irregular in outline and extend into the surrounding breast tissue beyond the palpable edges of the mass. This irregularity is due to the extravasation of blood into the surrounding tissue. Finally the opacity gradually diminishes in size and intensity and gradually disappears completely as the hematoma is absorbed. The carcinoma, on the other hand, does not improve but gets progressively worse.

A bloody discharge from the nipple most commonly means a papilloma or a carcinoma. Transillumination of a papilloma differs from a hematoma in that its edges are sharply defined. It differs from a solid tumor in that the shadow is more intense. Leading from it not uncommonly is a dark shadow of blood in the duct leading to the nipple. It is not unusual in cases bleeding from the nipple to find no palpable tumor. Transillumination may show the area of the breast that it is coming from as well as the papilloma. This finding may make it possible to save more of the breast. On the other hand if papillomata are found in several different parts of the breast, it may be advisable to do a simple amputation of the breast rather than to excise one segment, the latter of which would certainly lead to continuation of the trouble. When the discharge from the nipple is serous, however, location by transillumination is often impossible.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

Acute mastitis shows a diffuse opacity of the breast which gradually diminishes as the inflammatory process subsides. It usually takes several months for translucence of the breast to return. The lactating breast is also completely opaque to transillumination. The galactocele, as I stated earlier, is a sharply circumscribed opaque area.

In one or two instances transillumation has revealed a lump which I had overlooked at palpation. I consider transillumination a great aid in the diagnosis of breast lesions and employ it routinely in the examination of these cases.

A rather nonpenetrating x-ray photograph taken in an oblique manner through the breast has been used recently for the study of pathological breast changes. This shows variation in density, often gives a good idea of the size of the growth and also shows whether it has penetrated into the chest wall. These pictures are very interesting to compare with our operative findings and, while I have had a fair number of them, I do not use them as a routine because of the added expense to the patient. However, in some cases it is an important aid.

The treatment of carcinoma of the breast is not so simple as previously thought. Changes made in radiation therapy have greatly improved the results in some types of carcinoma. Most statistics showing carcinoma of the breast do not differentiate between the results in different ages, the different extent of the tumors, the different rate of growth, with tumors occurring in pregnancy and lactation or with different types of tumors. In checking my results I use the classification used at Johns Hopkins dividing breast carcinoma into six groups as follows:

1. Scirrhus
2. Medullary
3. Papillary
4. Gelatinous
5. Comedo
6. Paget's

In scirrhus carcinoma of the breast, surgery offers a great deal more than radiation. In medullary carcinoma I believe that thorough radiation therapy should be used to the breast and glands from four to six weeks before operation. Even then the tissues are not as good as in the other groups. Carcinoma of the breast during pregnancy or lactation is usually medullary in type and is nearly one hundred per cent fatal. This type should have very extensive radiation therapy. The results of surgery are questionable. I believe that removal of the breast in these cases should be confined to some cases in which extensive interstitial radiation and x-ray therapy or therapy with a 4 gram radium pack has stopped the lesion but has caused pain due to an x-ray burn. The last four types respond quite well to surgery, and opinions will differ on the question of pre and postoperative radiation.

To the student of carcinoma of the breast a very interesting field for speculation and research has arisen. By this I refer to the relationship of the endocrine glands, especially the ovaries, to both benign and malignant growths of the breast. It has been definitely shown that strains of mice can be bred to have a very high incidence of breast cancer. If a group of these mice have their ovaries removed when they are very young, the occurrence of carcinoma of the breast is practically eliminated. There is also some work to show that, if this group of ovariectomized mice are given potent ovarian extracts, they will develop carcinoma of the breast the same as the other mice of that strain. A possible application of this to the human would be to destroy ovarian action by radiation or operation in cases of carcinoma of the breast. This would be especially applicable to young women or cases associated with pregnancy or lactation.

### CONCLUSIONS

(1) In the diagnosis of breast tumors I have emphasized two methods, namely transillumination and roentgenograms. Transillumination should be a routine in the examination of breast conditions. Its most important value is in differentiating cysts from solid tumors. (2) All carcinoma of the breast should not be treated the same way. Certain types respond better to radiation and others to surgery. When surgeons and roentgenologists debate about the type of treatment to be applied they should state in their discussions the type of carcinoma about which they are speaking. (3) There seems to be a definite relationship between ovarian function and carcinogenesis in the breast.

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## TUMORS OF THE TESTICLE WITH PARTICULAR REFERENCE TO THE ASHEIM-ZONDEK TEST*

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Omaha, Nebraska.

The testicle probably shares with the rectum the distinction of being the part of the body most frequently overlooked in a routine physical examination. Any pathological change in the testicle is in nearly all cases discovered first by the patient and not by the physician. Tumors of the testis are not common, but they are encountered occasionally, and it is the purpose of this short talk to review the essential facts concerning the history and course of tumors of the testicle and to bring to your attention an important development in their diagnosis and treatment.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

The early symptoms of a tumor of the testicle are usually extremely insignificant, in fact there may be no symptoms other than a palpable nodule in or enlargement of the testicle. In a few cases the patient may notice pain in the testis or in the lumbar region, but as a rule pain becomes severe only after metastasis has occurred. This one symptom, a nodule or a diffuse swelling of the testis, is all that you should require in order to make a diagnosis of a testicular tumor; but before you make such a diagnosis two other lesions must if possible be ruled out: tuberculosis of the testicle and syphilis of the testicle. The former disease, tuberculosis, is usually secondary to tuberculosis of the epididymis, and in all probability tuberculous nodules will be palpable in the epididymis and will indicate the nature of the lesion.

Gumma of the testicle is becoming a rather rare disease, and the blood Wassermann should give a hint as to the nature of the testicular lesion. Syphilis of the testicle does not ordinarily enlarge the testicle to the astounding size which is produced by certain testicular tumors. A simple orchitis, on the other hand, such as one frequently sees following or during an attack of mumps, may cause considerable enlargement of the testicle but the pain is very severe; the onset and course of the disease are acute, and the history will usually leave little doubt as to the condition present.

The age of the patient will be of no assistance in making a diagnosis. Tumors of the testicle occur commonly in the second and third decades of life, when tuberculosis is common; but they are frequently met with also in older men when one would expect the tertiary lesions of syphilis to appear. In tumors of the testicle no age is immune. If you feel a diffuse enlargement of the testis, or if you feel a nodule in the testis, you are probably dealing with a tumor; and if it is a tumor it must be treated with the greatest of respect.

There are a few definitely benign tumors of the testis, but they are extremely rare. The vast bulk of testicular tumors fall into the group of teratomata, all of which are malignant or potentially so. There has been for many years considerable confusion in the classification of testicular tumors and it is only recently that Ferguson has brought out a classification which has very definite value. It has been known for a long time that nearly all the testicular tumors contain structures which have developed from more than one germ layer. Some of them—the group which Ferguson calls "teratoma with adult features"—contain definite tissues such as cartilage, muscle fibers, glands, fat or squamous epithelial cells. In this group may also be placed the so-called embryona in which are seen rudimentary organs or parts of a rudimentary fetus. Tumors of this type may or may not be malignant, but the greatest majority of them are, and they should be treated accordingly. In the second group, "embryonal carcinoma", although serial sections carefully studied will reveal evidence of their teratomatous nature, the tumor appears to be made up of fairly large round cells, with hyperchromatic and vesicular nuclei growing in sheets or in alveoli separated by bands of connective tissue. The third group, "embryonal carcinoma with lymphoid stroma" differs from the second only in the presence of large numbers of lymphocytes in a somewhat more abundant connective tissue stroma. Both of these groups are what was formerly known as seminoma and were supposed to be derived from the spermatoblasts or germinal epithelium. There are now divided into two groups on the basis of the amount of lymphoid stroma, since it has been found that the embryonal carcinoma with lymphoid stroma is definitely more responsive to x-ray therapy. The fourth group "embryonal adenocarcinoma" shows alveoli lined with cuboidal or columnar epithelium, in some cases papillary in character. Chlorionepithelioma is a fifth group of testicular tumors and here the tumor is in all respects similar to that which occurs in the uterus; and it is this coincidence which has led to the use of the Asheim-Zondek test in tumor of the testis. It was early discovered that a chorionepithelioma of the uterus would cause the excretion of Prolan A, the pituitary hormone, in the urine and would give a falsely positive test for pregnancy. Zondek then tried the test on cases of tumor of the testis and found that here also a positive test could be obtained. Moreover, it was found that the test might be positive not only in the case of chorionepithelioma of the testis but also in the case of any of the above mentioned groups of testicular tumors. Recently Ferguson has shown that the amount of Prolan A excreted in the urine depends upon the type of testicular tumor. By making quantitative Asheim-Zondek tests, and calculating the number of mouse units of Prolan A present per liter of urine, it has been shown that in the case of a teratoma with adult features, or an embryonal carcinoma, the Prolan A excretion is low, usually from 100 to 2,000 mouse units, whereas in the case of an embryonal adenocarcinoma or a chorionepithelioma it may be from 10,000 to 50,000 mouse units per liter.

A positive Asheim-Zondek test is of inestimable value in a case of suspected tumor of the testis. If it is positive it is proof of the presence of a tumor, and a quantitative test may give evidence as to the nature of the tumor. If it is negative, unfortunately we cannot be sure that tumor of the testis is not present, since the test has been negative in cases of known testicular tumor. It is an extremely valuable corroborative finding in diagnosing a tumor of the testis, but its greatest importance is derived from its use in the control of treatment.

The accepted treatment for teratoma of the testis has in the past been simple orchidectomy followed in some cases by x-ray therapy. The ease with which the tumor could be removed simply by removing the testis, and the cure which apparently followed this procedure, caused some surgeons to become rather over-optimistic about their results. We now know that metastatic lesions may appear many years after a small tumor of the testis has been removed, and that the prognosis in any case must be guarded.

Tumors of the testicle metastasize by way of the lymphatics and the first lymph nodes to become enlarged are those along the abdominal aorta. Metastatic lesions may appear occasionally in the inguinal glands but this is usually late in the course of the disease. Sometimes the glands in the region of the coeliac axis become so large that a mass is formed which may be mistaken for the spleen or the liver. Usually, however, the mass lies in the lower abdomen. Enlargement of the supraclavicular nodes, particularly on the left side, in not a few cases is the first evidence that metastasis has occurred.

In an attempt to obtain more satisfactory results from surgery, Roberts, Hinman and others have devised operations by which not only the testis and spermatic cord are removed but the lymphatic glands are dissected from the retroperitoneal region along the lower aorta. Sufficient data has not yet been accumulated to determine whether the increased mortality of this type of operation will be compensated for by an increased percentage of permanent cures.

Deep x-ray therapy, particularly in cases of embryonal carcinoma, gives fairly satisfactory results. Even when metastasis has occurred masses of glands can be made to retrogress and even disappear. In dealing with such a malignant tumor the roentgenologist has heretofore had no guide as to the length of time radiotherapy should be continued. Since the development of the quantitative Asheim-Zondek test one has available a method of gauging the extent of metastasis. By following the presence or absence, and, if present, the amount of Prolan A in the urine of the patient one has a direct index as to the effectiveness of the therapy. It seems probable that a positive Asheim-Zondek test, after the testicle has been removed, is evidence that metastasis is present, although this question is not as yet definitely settled. In fact, the exact source of the pituitary stimulating hormone is still somewhat in doubt. It is certain that a considerable amount of oestrin is present in a tumor of the testis, and transplanted testicular tumors are known to stimulate the pituitary gland; but another factor, the destruction of the testis, may be important. Removal of both testes in normal animals results in the excretion of Prolan A in the urine, and this might suggest that the destruction of the testis by the tumor removes some normal inhibitory effect upon the pituitary.

It must be admitted that the significance of Prolan A or a similar substance in the urine in cases of testicular tumor is not entirely clear, but the quantitative determination of the amount of Prolan A by the Asheim-Zondek test has been found empirically to be a valuable and practical contribution to treatment which has hitherto been somewhat unsatisfactory.

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Dr. James F. Kelly: I will say a few words in regard to this cancer situation as far as the Cancer Committee is concerned. We tried to appoint several sub-committees to study different aspects of cancer. About twenty-five special sub-committees have been organized which cover the cancer problem quite thoroughly from a practical viewpoint. During the coming year they will submit their report to the State Cancer Committee. These reports are to be published in the Journal and later material from them will be used as a basis for articles to be used in lay education. The program for lay education however, is not to be undertaken until every means has been used to reach each member of the State Medical Society with the latest authentic data on cancer in its various phases.

Following are a list of the various sub-committees:

1. Committee on Tumors of the Oral Cavity.
2. Committee on Tumors of the Skin.

3. Committee on Tumors of the Nose and Throat.

4. Committee on Tumors of the Stomach, Small Bowel, Liver, Gallbladder, Pancreas and Appendix.

5. Committee on Tumors of the Colon and Rectum.

6. Committee on Generalized Adenopathy, Leukemia and Splenomegaly.

7. Committee on Tumors of the Esophagus, Larynx, Trachea and Lungs.

8. Committee on Diagnosis and Treatment of Tumors of the Nervous System.

9. Committee on Tumors of the Bones. Joints and Tendons.

10. Committee on Tumors of the Breast.

11. Committee on Tumors of the Cervix.

12. Committee on Tumors of the Ovary.

13. Committee on Tumors of the Female Genital Tract other than Cervix and Ovary.

14. Committee on Tumors of the Urinary Tract, Penis and Testicle.

15. Committee on Tumors Peculiar to Children.

16. Committee on Tumors of the Soft Parts, Fat, Fascia, Muscle, Peripheral Nerves and Blood Vessels.

17. Committee on Tumors of the Ductless Glands, especially Thyroid, Para-thyroid, Pituitary, Adrenal and Thymus.

18. Committee to Study the Various Aspects of Biopsy Including Facts on Grading.

19. Committee on the Use of X-rays in Diagnosis of Malignancy and the Use of Radiation in the Treatment of Malignancy.

20. Committee on Use of Drugs and Anesthetics in Malignancy.

21. Committee to Investigate Quackery in the Treatment of Cancer in Nebraska and Neighboring States.

22. Committee on Endocrine Advancement with Reference to Malignancy, Diagnosis, Treatment, Prevention, etc.

23. Committee to Investigate the Bearing of Other Diseases such as Syphilis, Tuberculosis, Diabetes, Pyorrhea, Hyperthyroidism, Habits as Alcohol, Tobacco; Physiological States. Pregnancy, Lactation, Certain Occupations, Use of Arsenic, Tar, Race, Color, etc., on Malignancy.

24. Statistical Committee to Determine the Number of Cancer Cases in Nebraska, Receiving Treatment, Not Receiving Treatment, Cured in Five Years, Cured Less than Five Years, also Cancer Prevention in Nebraska.

25. Committee on Tumors of the Eye.

26. Committee to Study Cancer in Animals.

The committee has attempted to reach every member of the State Medical Association who is interested in working on one of the cancer subcommittees. Up to this time about 160 men have signified their willingness to cooperate in this work. Undoubtedly others willing to work have not been reached and the committee would appreciate it if they would send in their names and signify what type of work they are interested in and their name shall be placed on that sub-committee. More men from out in the state are especially urged to join.

The function of each sub-committee shall be to study the literature concerning benign and malignant growths effecting the organs or areas assigned to them and to summarize as briefly as possible facts which they think every physician should know.

These facts should pertain to known causative factors, significant facts usually obtained from the history, age, incidence, prevention, classification, early symptoms for diagnosis, late symptoms for diagnosis, prognosis, outstanding physical findings, x-ray findings, laboratory findings, pathology, benign, malignant, primary or metastatic, status of biopsy, indicated not indicated, tendency to remain local, tendency to metastasize, conditions requiring differential diagnosis, special signs or findings for each type of different stages in each type and treatment best suited for each type, surgery, radium or x-rays.

Summary for each sub-committee to follow:

Cardinal diagnostic data from history and findings.

Essential procedure for proper examination for diagnosis.

Essential procedure for proper examination before treatment is started.

Essential procedure for proper treatment where cure is possible.

Essential procedures for proper treatment for palliation.

Essential facts a cancer patient and his family should know.

Essential facts in follow up:

a. Type of questionnaire recommended to be used by each physician for follow up purposes. Varies with different lesions.
b. Time interval between follow up letters. Varies with different lesions.
c. Length of time necessary to elapse without evidence of local recurrence or metastasis before a cure may be reported. Varies with different lesions.

Essential procedure for periodic health examination as a prophylactic measure.

Essential facts to be given the public as prophylactic measures and as early signs of disease. Varies with different lesions.

Each sub-committee report is to be published if possible in the State Journal over the names of the committee members who submitted the data.

Bibliography also to be appended.

Work of a similar nature has been completed by the California State Medical Society and copies of their reports are available in California and Western Medicine. An article was published each month for several months and reprinted in the Bulletin of the American Society for the Control of Cancer. These are recommended for reference.

The entire sub-committee on any one subject or the sub-committees for several subjects or individual members from various sub-committees may give a summary of the findings of their subcommittee before various county and sectional meetings in the state as part of the educational program for the physician.

In behalf of the Cancer Committee, I wish to thank the men who presented the three subjects today and to thank the members of the sub-committees who have promised their cooperation.

The Nebraska State Medical Journal

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## GENTLEMEN'S AGREEMENT FOR MEDICAL RELIEF IN NEBRASKA ENDS

On August 2, 1935, by letter to the doctors of the State, Ernest F. Witte, Acting Administrator for the Nebraska Emergency Relief Administration, terminated the gentlemen's agreement with the Nebraska State Medical Association, to furnish medical service at reduced cost during the emergency created by the depression. This was confirmed by the committee in conference with Mr. Witte and by the summary discharge of the medical coordinator, and by the announcement that the Relief Administration itself would contact directly with the medical profession.

For one year, at the earnest request of Mr. Haynes, former director, the members of the Nebraska State Medical Association have worked harmoniously with the Relief Bureau in giving medical service at costs possible for them to pay from the funds available. This agreement was entered into through motives of patriotism and a sincere desire to meet the social inequalities which had visited economic ruin upon large classes of wage earners, as well as hardship upon the medical profession. The agreement was to run during the emergency or until either party had reason to withdraw but under no condition was the schedule of low fees to become an established precedent.

The Nebraska Emergency Relief is now in other hands, and the new director has terminated the understanding, discontinued the only representative named by authority of the Nebraska State Medical Association, and has announced that all cooperation will now be between his department and the doctor. He has a right to do this, of course. The members can accept the fees and methods offered if they desire. But as far as the Association is concerned, it neither approves nor accepts any further responsibility.

It was questionable from the first whether the Nebraska State Medical Association should endorse the plan for medical service furnished at the expense of the Federal and State Government, and further assist in the supervision or coordination through the assistance of Councilors and the component county medical societies. But after careful study it was decided that a patriotic duty demanded this organized medical aid in the furtherance of the plans for medical relief during the period of the emergency. The membership was never fully behind the decision but nevertheless a majority gave consent and the attempt followed. Now with the end of the emergency in sight, with the profession growing restless and a fear arising that the precedent is to be established, and with the dismissal of the coordinator, terminated by the new administrator, your committee sees no reason for continuing efforts as a body, at cooperation. It therefore relieves every member from the necessity to give further service.

Out of 93 counties, 73 have been on relief. During the first week in August, 30 of these had been removed, leaving 43, as at present. But the word has come from Washington to reduce the number further, and it is hoped by the time the snow flies that this form of relief will be entirely over.

The federal provision for medical relief has been inadequate from the first. Funds available for a family of five were $27.00. This was budgeted as follows:

$18.00 for food and cooking fuel.
4.00 for heating fuel.
2.00 for clothing.
2.00 for shelter.
1.00 for medical care.

Medical care was further divided into doctors' fees, dentists' fees, druggist supplies, hospital fees, and the charges of undertakers. Last year it was found that 60 percent of the medical dollar went to hospital care. In other states burial expense and hospital expense were not charged to medical relief. The amount set aside for the doctors' care speaks for itself. It amounts practically to donated service.

Your committee has made diligent efforts to quiet the dissatisfaction arising over the state. Through the coordinator, the officers, the councilors and the county societies, it has patiently explained what was thought to be a duty to society. The complaints most often heard are:

1. The red tape which was often irritating and prevented rendering satisfactory service. An example was the sudden appearance of a $2.00 sticker, which no one admits authorizing. This was pasted promiscously upon the authorization blanks.

2. Establishment of precedent for payment of fees below the cost of the service.

3. Fear of a step toward State Medicine.

4. Domination by welfare workers of a field in which they had no experience.

5. Gradual placement of all emergency cases on relief.

6. Service to unemployables as well as to employables temporarily out of work, hence not an emergency problem.

7. Building up a riff-raff practice made up of persons expecting but not appreciating the service.

8. Last, but not least, the fee of 50 percent of the customary charges in a community proved to be about 20 percent fees for service rendered, due to the restrictions placed upon the amount of service and the type of service allowed. There was provision for only the emergencies. This left a large number of registered "clients" clamoring for service.

On the whole the attempt to cooperate has been unsatisfactory, althought the relations of the coordinating members has been pleasant. The loyalty of the social workers to their problem has been unquestioned. But due to the inadequate provision for medical care, the service to the "relief client" has been unsatisfactory and a type that the well trained physician does not care to render.

Early in the studies of "The Committee On Costs of Medical Care" it was found that the medical fees were not exorbitant and that the average physician's income was inadequate for his needs. We challenge the social workers anywhere to prove that members of the medical profession are not socially minded or that they are not giving freely of their time and skill in a full measure. But the profession cannot lower the standards of medical care, nor can it be expected to render professional service at a fraction of the cost.

So far as the committee is concerned, acting for your society, all agreements and responsibility for coordination with the Relief Administration as organized has terminated.

—Committee on Public Policy and Legislation.

## OMAHA OFFERS A CENTRAL HEALTH SERVICE FOR LOW INCOME GROUP

A central health service, which provides for necessary medical care of low income patients at reduced cost is now offered by the Omaha-Douglas County Medical society and related groups. Much time and effort has been spent to work out the plan on which the service is based. In a general way it may be said to follow the widely heralded San Diego Plan now in operation for several years. The plan is essentially the following:

1. A Central directing organization, to be known as the Omaha-Douglas County Central Health Service, shall be established for the purpose of assisting low income patients to obtain health service at a cost they are able to pay.

2. The personnel of this organization shall consist of a minimum of one full-time executive secretary and one field worker, both of recognized standing in the field of medical social service, with necessary clerks and office headquarters.

3. The general policies of this organization shall be determined by a Board of Directors constituted as follows: Three physicians, two dentists, one hospital superintendent, one nurse, one pharmacist—to be appointed by their respective professional societies.

4. Direction of this Central Health Service shall be by an executive committee of three appointed by the Board of Directors, two of whose members shall be physicians, each member to serve a term of three years.

5. The Omaha-Douglas County Health Council shall act as an Advisory Board to this Central Health Service.

6. Patients shall be referred to the Central Health Service only by physicians or welfare agencies of recognized standing, with preliminary medical and social survey to indicate the patient's health needs and lack of resources to provide for the total cost at regular prices.

7. The Central Health Service shall confer with the patient so recommended, investigate further if necessary, and recommend a percentage reduction in medical fees and costs for services needed.

8. Members of the interested organizations rendering service will be expected to indicate their willingness to accept the recommendations of the Central Health Service in percentage reduction of rates to be charged. Such charges will be billed at regular minimum rates with the percentage discount indicated as recommended.

9. Collection of all charges shall be centralized in one office, with retention of 10 per cent by the Central Health Service for operating expenses.

10. It shall be the obligation of the Central Health Service to send patients who are unable to pay anything for private medical care to the teaching clinics of the city in rotation, or to the County Clinic if not desired for teaching purposes. Exceptions are to be made to cases of recent private status when the attending physician desires to continue care of the patient without charge.

11. An income eligibility schedule for free medical care shall be established at the lowest figures permitted by thrift and living necessities, under prevailing economic conditions.

12. Exceptions can be made under this income eligibility schedule only by conference and agreement with the attending physician or Central Health Service.

13. No patient shall be referred to the Central Health Service without the report of an attending physician.

14. Low income patients with non-disabling illness costing less than twenty-five dollars for treatment will be denied the facilities of the Central Health Service.

15. The following Income Eligibility Schedule for free medical service is recommended at the present time:

| | A Week |
|---|---|
| Single man or woman (home not furnished) | $ 8.00 |
| Single person (home furnished) | 4.00 |
| Man and wife | 12.00 |
| Man, wife and one child | 14.00 |
| Man, wife and two children | 15.00 |
| Man, wife and three children | 16.00 |

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## THE NATHAN SMITH DAVIS MEDAL

Medical history has some very interesting bypaths, one of which is the study and collection of medical medals. The greatest master in this field was Dr. H. R. Storer of Boston, one of the celebrated family that included, scientists, doctors, artists and diplomats. This Boston doctor began to collect in 1878 and had accumuated over 4,000 specimens before his death in 1922. His great collection is now the property of the Boston Medical Library.

The writer recently came in possession of an interesting and very rare medal issued from the Philadelphia mint in 1875 to honor the "Father of the American Medical Association," Dr. N. S. Davis. If one searches the records of that society he finds that this is the only medal ever struck in honor of any of its officials, except the beautiful Aesculapian gold medal given since 1930 to outgoing presidents.

At the Detroit meeting in May, 1874, Dr. H. F. Askew of Delaware proposed the plan that the society should have a bronze medal made with the likeness of Dr. Davis on one side and the name and date of the organization of the association on the reverse and that thereafter every new member of the association was to be given a medal when he joined.

The committee in charge, with Dr. Toner as chairman, hired the celebrated engraver, Wm. Barber of the Philadelphia mint, to cut the die.

In the following year when the society met in Louisville, Ky., the committee chairman reported that a very fine die was made at a cost of $250, and that they had a specimen on hand. He further said that the treasurer, Dr. Casper Wistar of Philadelphia, had interpreted the language of the Detroit resolution to allow the cost of the die to be paid from the treasury but not the expense of stamping the medal. It would, therefore, be necessary for any doctors desiring such a medal to order it at $1.15 each. How many were so purchased the records do not tell, undoubtedly not many.

The attitude of the treasurer was probably animated not only by economy but undoubtedly equally as much because, being a Philadelphia doctor, he had great antagonism to the aggressive "Chicago bunch" of which Dr. N. S. Davis was the preeminent leader. The Quaker city had for nearly a century from the times of Dr. Benj. Rush, prided itself on being the medical center of the new world, and in the 70's it felt its ascendency slipping to Chicago. In fact, it was in 1882 that the *Journal of the A. M. A.* was started in Chicago under the editorship of Dr. Davis and this sealed the fate of Philadelphia's leadership and ultimately the A. M. A. headquarters were placed in the west permanently.

Economy of expenditures was indeed most important to the society in 1875 for the entire membership was less than 500 and the net worth was only $3,022.41. To spend nearly 10% of all the net assets for a die seemed a piece of gross extravagance of Treasurer Wistar.

What a growth in the size of the A. M. A. of 1935 when the net worth is $3,438,312.41 and the membership is 99,536.

The good Dr. Nathan Smith Davis was certainly deserving of the honor shown him in the issuance of this medal for no man ever labored with more earnestness, enthusiasm and self sacrifice for the development of any organization than did this doctor of the old school. The great leader practiced his profession in Chicago from 1849 to the time of his death in 1904 at the age of 87 years. Some day a capable historian will write a much needed record of this old patriarch and also the great association that he founded.

The history of this greatest of the world's medical societies has two very definite periods. The Ancient Regime extends from its founding in 1847 at Philadelphia till the reorganization by a new constitution in 1901, and then the Modern Regime from that date to the present. It is most interesting that the men that dominated the policies during these two periods were Dr. N. S. Davis in the first and Dr. Geo. H. Simmons from Nebraska in the second.

If one goes back over the records of the A. M. A. he is confronted with the conclusive evidence that the good Dr. Davis was not only the Father of the Medical Association but was a real *pater familias* during the first fifty years of its history, having been absent from only eight meetings. Not only was he twice president but served on he board of trustees, innumerable committees, ounded the *Journal* and guarded the ethics of he profession as the leader of the judiciary comnittee. The minutes showed the doctor to have een preminently active and aggressive. His peeches, papers, resolutions and motions filled ages of the proceedings. In fact, during that ime it seemed to be a series of one man convenions with the other delegates only spectators.

Throughout one can see that this wonderful loctor was animated by two purposes, the one o improve the intellectual standard of the medical rofession and the other to elevate the ethical ractices of the doctors. And what a fighter he vas for these ideals!

But his annual "vacation" at the meeting of the A. M. A. was but an infinitesimal part of this Chicago doctor's activities. He was a Dean of Northwestern Medical School, editor of medical ournals, practicing family physician, trustee of hospitals, sanitariums and libraries. In truth, nly a comprehensive biography can tell the imnense scope of his influence.

It is a most significant fact that the life and ctivities of Dr. Davis is one of the clearest illusrations of history to show the play and interction of the events of the times and the indiidual personality.

The doctor was a descendent of a pious, rural amily of western New York, and when his mothr died, before he was seven years old, she adnonished him on her death bed to serve God and lways endeavor to do good to his fellow man. When he gave his last speech at a Chicago banuet in his honor in 1901, he declared that this romise to his mother had been his guide through fe.

The span of the doctor's practice for 67 years rom Vienna, New York state, to New York City and then in Chicago, stretches over the perod of greatest development in medicine and other ciences in human history. During this period ame Morton's anaesthesia, Pasteur's bacteria discovery, and Lister's antiseptic surgery and nnumerable associated discoveries. Our good loctor was not always very receptive to the inoations that these ideas brought forward. His liagnosis was based largely on the interview nethod. "Bah!" said he once. "Why do I need thermometer to tell a fever? Can't I know vith the touch of my hand?"

Not only was he born a Methodist but when boy in Casnovia Academy he was "converted," nd this rigorously fixed his religious and ethial ideals throughout life. He was one of the ounders of Northwestern University and was on its board of trustees till his death. For over thirty years he taught a Bible class in the Grace Methodist church. So great was his abhorence of alcohol that he would not allow it to be used in any of his prescriptions. Prohibition was his hobby, and he founded in 1890 the Medical Temperance Society. Out of deference to his opinions the toast to his health at the banquet of 1901 was given over a glass of sparkling Waukesha water.

His rigorous Methodistic idealism showed itself in the opposition he bore to violations of the Code of Ethics of the A. M. A. In fact, a very large element of the New York doctors under the leadership of Dr. A. Jacobi revolted from the association in 1882 and only returned in 1902 after Dr. Davis had retired from activity at the conventions.

After a study of the great Chicago physician we must declare that he was the greatest illustration of that so-called extinct species—the family doctor—who lived and acted in the greatest era in the history of medicine and science. It would seem then most appropriate that the great medical association should have issued in 1875 that bronze medal in honor of its founder.

An eloquent editorial in the *Illinois Medical Journal* at the time of his death in 1904, said: "No one man of this city has ever written so many prescriptions as he, and no man probably ever will. No man of this city has visited the bedside of so many that were poor and sick and suffering, where there was no hope for reward save their gratitude, as he and probably no man ever will."

—W. J. Hammill, Omaha,
(Layman student of medical history).

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## ABOUT FOURTEENTH EDITION AMERICAN MEDICAL DIRECTORY

The following from the Directory Department of the American Medical Association is interesting partly because it is true and partly because the suggestions are somewhat impractical.

Physicians who have lost membership in the state association do not receive the *Journal* because of loss of membership and therefore do not read this notice. Physicians who never have been members are not *Journal* subscribers and therefore not readers of the *Journal*

It also illustrates forcibly the tragedy of nonmembership by loss of appointments, with industrial firms, insurance companies, railroads, etc.

Membership in medical societies is worth while.

August 13, 1935.

The work of revising and compiling the new Fourteenth Edition of the American Medical Directory has been started.

After every Directory is published we receive a number of complaints from physicians who have not been listed as Members or Fellows of the American Medical Association. Some of these men have possibly lost appointments with industrial firms, insurance companies, railroads, etc., because they were not indicated as members. They may have been members and let their membership lapse or new men in the community who failed to join their local society in time to indicate this information in the Directory.

To eliminate such criticism, we are asking Secretaries of State Medical Societies and Editors of State Medical Journals to cooperate in notifying all delinquents and eligible applicants that a new Directory is going to be published. It would aid greatly if a notice were placed in your publication calling to the attention of your readers, the importance of sending in their data promptly when requested and the keeping up of their membership in your Society.

It will probably be two years or 1938 before another Directory will be issued.

Thanking you for your assistance in this matter, we are

Very truly yours,
AMERICAN MEDICAL ASSOCIATION

## THE OMAHA MID-WEST CLINICS

The Omaha Mid-West Clinical Society will hold its third annual sessions in Omaha, Nebraska, October 28th, 29th, 30th, 31st, and November 1st, 1935, to which you are cordially invited.

Our guest speakers given below, during this year's sessions are men of national renown. The topics for their two addresses and the type of cases selected for their clinics are such that both specialist and general practitioner will find material which will bring them up to 1935 when considering problems of like nature encountered in their own practice.

Dr. Joseph Brennemann, Chicago, Pediatrics.

Dr. W. B. Carrell, Dallas, Orthopedic Surgery.

Dr. Arthur B. Cecil, Los Angeles, Genito-Urinary.

Dr. Russel L. Cecil, New York, Medicine.

Dr. Arthur C. Christie, Washington, Radiology.

Dr. Vernon C. David, Chicago, Surgery.

Dr. J. R. Goodall, Montreal, Gynecology and Obstetrics.

Dr. Roy R. Grinker, Chicago, Neurology.

Dr. Andrew C. Ivy, Chicago, Clinical Physiology.

Dr. Jay A. Myers, Minneapolis, Tuberculosis.

Dr. Edward C. Sewell, San Francisco, Eye, Ear, Nose and Throat.

Dr. Udo J. Wile, Ann Arbor, Dermatology.

The lectures and clinics prepared by the members of the Society have been most carefully selected. These physicians, because of their many years of teaching as faculty members of Creighton University and University of Neb ka Medical Schools, present their subjects in t chosen specialties most interestingly. Most the lectures will be enhanced by lantern sli and quite a few by moving pictures.

Technical and Commercial Exhibits, along a most interesting moving picture progr round-table luncheons and dinners, will round a most intensive five-day study period.

Much money and time could be expende going far to attend a meeting such as will be sented by this Society next October and it is that the endeavors of the Society in presentin meeting of this caliber should have the full dorsement of the physicians of the Mid-w This indorsement can only be manifest by y support in attending these meetings.

You cannot afford to miss these sessions it is urged that you NOW reserve October 2 29, 30th, 31st, and November 1st for the Om Mid-West Clinical Society sessions.

Daily round-table luncheons will be held Hotel Paxton from 1:00 to 2:30 p. m. luncheon will be of buffet type for which a m erate charge will be made. It is here that will be able to listen to remarks and discussi from our distinguished guests.

A special dinner will be served at 6:30 p. each evening for all wishing to attend. The ners will be entirely informal and another op tunity will be had to hear again from our tinguished guests.

Plan to attend these meals. Here the op tunity will be afforded to make new friends, new old acquaintances, hear interesting dis sions, and be part of that good-fellowship u to the festive board.

## EDITORIAL PARAGRAPHS

In times long past an approved cure for a g shot wound was to anoint the gun.

Paradoxically, the sale of soft drinks show increase of at least 25% since the passing of prohibition era.

Infantile paralysis has afflicted the Atla coast states from North Carolina north to York City.

Over a hundred cases of typhoid fever occurred this summer in the Minneapolis and a number in St. Paul.

Wolf in *J. A. M. A.* June 29, 1935, ment silent mastoiditis as an insiduous progressive struction of the mastoid process with or witl otorhoea.

pp. 355-8 missing

## HUMAN INTEREST TALES

Dr. John C. Eagan has located in Madison.

Dr. R. L. Peterson has located at Oshkosh.

Dr. W. J. Hemphill, North Loup, has been ill for some time.

Dr. Roy Peterson, formerly of Chappell, has located at Oshkosh.

Dr. Kenneth Prescott has moved from Long Pine to Tecumseh.

Dr. George Griot, Chadron, recently spent some time in the Ozarks.

Dr. L. W. Collins, formerly of Marcus, Iowa, has located at Snyder.

Dr. Z. L. Kay, McCook, recently celebrated his eighty-sixth birthday.

Dr. and Mrs. R. E. Johnson, Wausa, spent a few days at Lake Okoboji.

Dr. Emelai Brandt, Omaha, visited the Minnesota lake region in mid-July.

Dr. Lester Shupe has become associated with the Lynch clinic, Fairbury.

Dr. Mary Fochtman, Cozad, recently returned from a trip to the west coast.

Dr. F. W. Heagey, Omaha, submitted to an appendix operation recently.

Dr. J. F. Heuman and family, Benson, spent their vacation in the Black Hills.

Dr. and Mrs. C. W. Way, Wahoo, have returned from a trip to New England.

Dr. and Mrs. F. J. Stejskal, Crete, travelled through the Black Hills this summer.

Dr. Harold McConohay has located at Alma in association with Dr. R. H. Kerr.

Dr. Bruce Anderson has become associated with Dr. Clayton Andrews, Lincoln.

Dr. C. R. Williams and sons, Hemingford, vacationed in the Black Hills in July.

Dr. and Mrs. R. P. Carroll, Laurel, made a trip to Montana and the Northwest coast in July.

Dr. and Mrs. R. C. Panter, Dorchester are spending August and September near Hackensack, Minn.

Dr. and Mrs. L. M. Stearns, Kearney, made a vacation trip to Michigan the latter part of July.

Dr. and Mrs. K. S. J. Hohlen, Lincoln, made a ten-day trip to Milwaukee and Chicago in July.

Dr. and Mrs. Clayton Andrews, Lincoln, spent three weeks in the mountains of Colorado and Wyoming.

Dr. and Mrs. B. V. Kenney, Dodge, returned from a trip to Idaho, Oregon and the San Diego Exposition.

Dr. and Mrs. P. H. Salter, Norfolk, visited in Oregon last month and also made a trip to Victoria, B. C.

Dr. Glen S. Weaver has been added to the staff of the Norfolk State hospital. He hails from Belpre, Kan.

The marriage of Dr. Arthur Dworak, Omaha, and Miss Helen Swandollar of St. Paul, Minn., occurred July 3.

Dr. and Mrs. E. T. Molzahn, McCook, visited in Ohio, upper Canada and the great lakes region this summer.

Dr. H. C. Smith, a practtiioner at Ainsworth years ago, visited there recently. He now resides at Glendale, Calif.

Dr. C. A. Selby, North Platte, visited his parents in Long Beach, Calif., and also attended the San Diego exposition.

The friends of Dr. W. J. Birkofer, Gothenburg, will sympathize with him in the loss of a foot from diabetic gangrene.

Dr. G. W. Pugsley, Bayard, accompanied by his daughter, attended the International Rotary convention at Mexico City in June.

Dr. E. L. MacQuiddy, Omaha, spoke on air conditioning to the Ohio Sheet Metal and Roofing Contractors' convention at Toledo last month.

Dr. and Mrs. Fred Fouts, Central City, have returned from a trip which included Bryce and Zion canyons, the San Diego exposition, the Yosemite and the Grand Canyon of Arizona.

The following promotions were announced: Dr. Thomas McCurdy, assistant professor of pathology; Dr Samuel A. Osheroff, instructor in gynecology and obstetrics and adjunct attending in gynecology at St. Joseph's hospital; Dr. W. Joseph McMartin, instructor in urology and anatomy and adjunct attending in urology at St. Joseph's hospital and Dr. Julius M. Moskovitz, of Council Bluffs, instructor in gynecology and adjunct attending in gynecology at St. Joseph's hospital.

Recent appointments to the faculty of Creighton medical school are as follows: Dr. William E. Kroupa was named assistant in obstetrics and adjunct attending in obstetrics at St. Joseph's hospital. Dr. William N. Hahn was appointed acting assistant in ophthalmology; Dr. John Stageman, of Council Bluffs, acting assistant in oto-laryngology and ophthalmology; Dr. J. Philip Cogley, acting surgical director, Mercy hospital, Council Bluffs, and Doctors Morris H. Brodkey, Robert J. Drake, Mead, Nebr.; John W. McGee and Ben Slutzky, assistants in medicine.

## BOOKS RECEIVED

OBJECTIVE AND EXPERIMENTAL PSYCHIATRY, by D. Ewen Cameron, M. B., Ch. B., D. P. M., Physician in Charge, Reception Service, Provincial Mental Hospital, Brandon, Manitoba; Formerly Assistant Physician, Glasgow Royal Mental Hospital; Assistant Resident Psychiatrist, Johns Hopkins Hospital, and Instructor in Psychiatry, Johns Hopkins University; Henderson Research Scholar, Volontairarzt, Stadtsanstalt; Burghoelzli, Zurich. 8 mo., 271 pages. Published by the MacMillan Company, New York. Price, $3.00.

ANNUAL REPRINTS OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1934, WITH THE COMMENTS THAT HAVE APPEARED IN THE JOURNAL. Cloth. Price, $1. Pp. 135. Chicago: American Medical Association, 1934.

NEW AND NONOFFICIAL REMEDIES, 1935. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1935. Cloth. Price, $1.50. Pp. 510. Chicago: American Medical Association, 1935.

In this book the Council on Pharmacy and Chemistry lists and describes the medicinal preparations that it has found acceptable for general use by the medical profession. A glance at the list of the Council members and the long list of consultants appearing in the first part of the book gives ample warrant for the authority of the Council's selections.

Not only does the Council "accept new preparations but from time to time it omits those which have been accepted but which have not with the lapse of time upheld their original promise of therapeutic merit. The list of omissions for 1934 shows that the Council has been mainly concerned in this respect with B. acidophilus preparations and with antiseptics. Several preparations of each class have been omitted. The list of admissions does not reveal the presence of any preparation that promises to be epoch making in the sense that insulin was, for instance. However, the following newly accepted preparations are noteworthy; Carbarsone, an arsenical used chiefly in the treatment of amebiasis (the Council published a special report on this drug, supplementing the preliminary report of 1932); Hippuran and Diodrast, two different types of urographic contrast mediums: Carotene, the precursor of vitamin A; Dilaudid, a substitute for morphine; Neo-Synephrin Hydrochloride, which has a number of advantages as a vasoconstrictor over synephrin tartrate; and Diothane, which represents a type of local anesthetic entirely different chemically from any heretofore accepted for N. N. R.

The description of products containing vitamins A and/or D have been revised to give the potencies in terms of the recently adopted pharmacopeial units, thus bringing some measure of uniformity into this heretofore chaotic field. No doubt the book will be revised next year to conform with the new Pharmacopeia in its entirety.

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations and the biologic products are each preceded by a general discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplement or supplant.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the "Bibliographical Index to Proprietary and Unofficial Articles not Included in N. N. R." of much value. In this section (in the back of the book) are given references to published articles dealing with preparations that have not been accepted. These include references to the Reports of the Council, to Reports of the A. M. A. Chemical Laboratory and to articles that have appeared in The Journal.

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## ACTIVE IMMUNIZATION WITH MENINGOCOCCUS TOXIN

The work of N. S. Ferry, Detroit, and A. H. Steele, Northville, Mich. (*Journal A. M. A.*, March 23, 1935), demonstrates that certain individuals who are susceptible to the skin test dose of meningococcus toxin can be made immune to this dose of toxin by at least three subcutaneous injections of the undiluted toxin in graduated doses. This immunity can be produced against the toxin of one type by injections of a mixture of toxins of all types. While the results of these tests indicate certain facts in regard to the stimulation of active immunity in man against meningococcus toxin, they do not necessarily signify that an immunity against the organism can be produced at the same time, although such a condition is true of some soluble toxins and it is not unreasonable to expect the same of this toxin. This method of immunization, however, does suggest a possible means of active protection against the disease itself and is worthy of consideration and further study, especially since it was shown that active immunity against infection with the virulent meningococcus can be stimulated in laboratory animals following prophylactic injections of this toxin. The answer to this question, while of great importance, must of necessity be deferred until such a time as more conclusive clinical data are available.

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# AN INVENTORY OF SURGICAL CONSIDERATIONS WHICH ARE FUNDAMENTAL TO FURTHER PROGRESS IN OUR ART*

WILLARD BARTLETT, A. B., A. M., M. D., D. Sc., F. A. C. S.,
Saint Louis, Mo.

*Study of Anatomy developed Technique.*
*Study of Chemistry produced Anaesthesia.*
*Study of Pathology resulted in Antisepsis.*
*Study of Physiology gave estimate of Patient's Reserve.*

*Progress is most easily apparent when we contemplate—*

*Gut Obstruction*
*Emergencies*
*Rehabilitation*
*Graded Operations*
*Anaesthesia*
*Multiple Lesions*
*Who the patient is.*

It occurs to one who reviews the history of medical progress over the last four and one-half centuries that it has been characterized by rather well marked waves of enthusiasm in several different directions. For more than two hundred years progress in anatomy seemed of paramount importance; during this period technical proficiency was developed to a higher degree than has seemed apparent since that time. During a second fifty years or thereabouts anaesthesia of a general nature came gradually into being with resultant loss in operative brilliancy because there was no need to hurry any longer with a patient asleep or unconscious. For something like forty succeeding years the medical world led on by Virchow and his followers developed medicine and surgery along the lines of pathology and pathological anatomy with the inevitable consequence that antisepsis and later asepsis came into being. Since the early 'eighties physiology seems to have largely guided the surgeon in his striving for progress, something for which we are very largely indebted to Kocher, Treeves, Horsley, Matas, Crile and other distinguished pioneers who early foresaw the possibilities in this direction. Probably the most important single gain for surgery produced in the last fifty years has come from our increased ability to estimate the patient's reserve strength, that is, his ability to endure surgical trauma.

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*Guest speaker address, annual meeting Nebraska State Medical Association, Omaha, May 14-16, 1935.

It will be seen from the foregoing that surgery of the first three periods dealt, so to speak, with details however important they may themselves have been while our considerations during this last mentioned period, in which we now function, take into consideration the entire individual no matter from what aspect he be viewed. We never during the four hundred years which preceded the physiologic era accomplished anything comparable with the mortality and morbidity statistics which have obtained in the last half century and this is claimed in spite of the fact that every dispensable organ (except the lung) had been successfully removed previous to 1882. Illustrations will be drawn from several fields in the hope of conclusively proving the truth of the claims which have just been made for surgery which has physiology as its guiding star.

1. *Gut Obstruction.* The day was when the patient suffering with obstruction was treated outside the hospital until fecal vomiting, clammy skin, and euphoria characterized the situation; then he was rushed in, taken directly to the operating room without preparation, and sacrificed all too frequently in the endeavor to perform a *curative* operation. Today we first analyze the situation, knowing that differential diagnosis is possible in ten of the twelve varieties of obstruction (mechanical and paralytic), being indeed probable in several of them. A surgeon of sufficient experience goes slowly because he knows that there are at least six types of obstruction in which an exploration, as such, cannot possibly benefit the patient. On the other hand, one must ever keep in mind that there are six of the twelve primary types in which the individual is certain to die unless his abdomen be opened. One may sum up this situation by asserting that the mortality in obstruction has been reduced through the employment of five considerations, no one of which can be dispensed with. First of all, timely hospitalization which means no cathartics or enemas on the outside because both tend to deplete the patient and damage his bowel while breaking down his last line of defense, something understandable to the man who realizes that the obstructive symptoms constitute nature's protective mechanism rather than furnish a disease entity themselves. A differential diagnosis is perhaps second in importance; as stated above, it can be made in a high percentage of cases. Preoperative rehabilitation of the patient is third in importance consisting mainly of replacement therapy, sedation, and temporary rest for the depleted individual. The man who is chilled, frightened, and dehydrated is likely to die in consequence of the best intentioned surgical procedure though he may badly need it and find it inevitable after a delay entailed by the attempt to correct his general condition. Spinal anaesthesia is the fourth of the considerations here involved. Sometimes it empties the patient obviating the necessity of an exploration and it always renders closure of the abdomen not only possible but surprisingly easy, something which cannot be said for any type of general anaesthesia, a matter of vital importance in this connection as will be realized by the operator who has attempted to close an abdomen which seems too small for the distended viscera which he is vainly trying to crowd back into its seemingly narrow confines. The fifth and last of these considerations is that of the graded operation. Don't make the mistake of trying to accomplish the ideal with this type of patient. If confronted with gangrenous bowel go no further than to exteriorize it because if the patient lives some type of anastomosis can be accomplished at a later period, but if the ideal procedure be attempted in the presence of major obstruction the patient is almost certain not to live long enough to profit thereby.

2. *Emergencies.* We have been prone to lump all emergencies and think of this field of surgery as being filled exclusively by operative conditions when in reality nothing is farther from the real truth in the matter. One who has spent a large part of his life in the study of pathology realizes that all emergencies should be divided into two classes, those which are absolute (concerning the vital organs) and those which are relative (concerning the nonvital structures). This matter is briefly summarized for one who will stop and consider that only three systems, the central nervous, the respiratory, and the circulatory possess functions so highly vital that their interruption for any appreciable time is attended with inevitable dissolution. It is therefore plain to see that something must be instantly done for a

man who is suffocating or bleeding to death though the emergency treatment of the nervous system cannot be so easily dismissed with a word. On the other hand, the relative emergencies which concern the skeletal, digestive, genital, or urinary tracts may be better attended to at a somewhat *remote* period on a patient who is badly depleted no matter how important such a procedure may ultimately become.

3. *Rehabilitation.* So many allusions have already been made to depletion of the patient and so many more are inevitable that repetition may, I think, well be avoided by omitting detailed considerations of it at this time, thus allowing us to pass on to the next phase of this subject.

4. *Graded operations.* There is perhaps no field of surgery in which the principle here elucidated does not apply at times although there are certain ones, six in number, in which it seems particularly useful and at times of vital importance. It is, I think, universally accepted practice to divide colon resections into two stages for the very obvious reason that the treatment of *some* grade of obstruction is entailed and no obstructed patient is ever in shape for an ideal remedial procedure. His obstructive symptoms must be overcome at the first stage and the mechanical cause of his obstruction receive operative treatment at the second. Prostatectomy, though in part replaced by resection today, has always furnished one of the best illustrations of the value exhibited by a two-stage operation. At the first stage the important problem is to restore kidney function while at the second the idea is to remove the mechanically obstructing tissue. This operation is perhaps no better done than it was in the early years of this century but the mortality has been greatly decreased by the two-stage maneuver. In the treatment of infectious lung lesions it has long been axiomatic to wall off the free pleural cavity at a first sitting rather than drench it with pus in the endeavor to complete at one stage an operation which were done more safely at two sittings. Both lobes of a toxic thyroid are usually removed at one sitting since we have learned not to operate at all until great improvement seems manifest, but there is now and then a patient whose improvement does not progress to the point where this can be safely done hence an occasional single lobectomy seems indicated and is attended by vastly decreased risk provided only that the surgeon make it a question of condition rather than time before he attempts the second lobectomy. Surgery of the extremities furnishes an interesting example in this field of surgery. A leg or an arm which has been so badly shattered that it cannot be saved had well be removed as soon as condition warrants it although it has seemed to us on occasion that we might have exercised very poor judgment had we gone on and constructed an ideal weight-bearing stump on the patient who had been subjected to shock or hemorrhage—when this can be done with much greater safety at a second sitting. We have perhaps gone further than some others in the treatment of gallstone disease by graded operation. Since we have learned more about liver and kidney damage in common duct stone obstruction we are prone in many instances to furnish the patient the simplest type of relief from back pressure by slipping a tube into the gallbladder, then doing all we can to complete rehabilitation before the much more arduous exploration of the duct or removal of the gallbladder be undertaken. Of course, the eventual necessity remains the same no matter whether met at one or two stages, but the thing that really matters is the safety to life rather than prolong hospital stay on a two-stage as opposed to a single-stage procedure.

5. *Anaesthesia.* The most remarkable advances have been made in this field since we acquired a concept of the subject which may be said to embrace seven phases in addition to that of a perfectly painless procedure carried out in the operating room. They are anxiety, insomnia, restlessness, nausea, sweating, pain, and thirst. A complete mastery of the subject contemplates their control both before and after operation. We, ourselves, never succeeded in this endeavor to any noteworthy degree until we began to contemplate an anaesthesia as covering a period, roughly speaking, which embraces the night preceding operation and the day following it in addition to the actual experience in the operating room. In 1921 we began to study the preoperative effect of the barbituric acid compounds in conjunction with general and regional or local anaesthesia and learned very soon that postoperative effect of this type of drugs was perhaps little less important than those manifest in preparing the patient for the ordeal. Fourteen years experience with thousands of operative cases embracing most fields in general surgery have convinced us that the barbiturates have in a large majority of cases every advantage over morphine, hyacine, scopolamin, and the other drugs which have been supplanted by it. Brevity compells me to give but a few illustrations of the points involved.

In a long series of patients prepared with phenobarbital for all sorts of operations only 17% experienced postoperative vomiting as contrasted with 40% of a similar series who were troubled by it after morphine preparation. The direct as well as the indirect benefits of this are apparent when one considers wound healing, danger of postoperative hernia, etc. Postoperative catheterization was needed in only 6.5% of the patients prepared with phenobarbital whereas 14% of those who took preliminary morphine were subjected to this highly unpleasant as well as undesirable procedure. Postoperative hypodermoclysis or venaclysis were required in only 5% of all who were prepared by phenobarbital because they drank early while on the other hand the astonishingly large group embracing 64% experienced a certain degree of discomfort from the needle if nothing worse. (It is to be observed that there were no cases of intestinal obstruction or peritonitis in these series).

The average maximum single dose of phenobarbital for an adult was fifteen grains. Usually, however, it was thought better to give three grains every three hours until five doses had been given, thereby establishing a tolerance test before the second dose was administered. One may add in passing that this treatment is not to be recommended before spinal anaesthesia or in the presence of low blood pressure. Larger doses may be required in toxic goiter, in patients of large size, or individuals subject to the sedative drug habit, whereas, on the other hand, a smaller dose is advised in the extremes of age or when the patient is depleted.

Our own great interest in goiter surgery has impelled us to devise an anaesthesia method which seems to have distinct advantages in this field. The reasons for it become apparent when one takes into consideration that the toxic patient has a particular psychic need; she also has a high oxygen requirement; furthermore, hemastatis in this field is rendered doubly difficult if there be cyanosis and consequent bleeding. Then, too, the vocal cords can be tested by having the individual speak from time to time only if the individual be to some extent awake, while tissue repair requires that the operative field be wholly free from fluid infiltration as practiced by so many in this field. This goiter anaesthesia is secured by injecting the superficial cervical plexus just behind the middle of the sternomastoid muscle, by blocking the descending branch of the hypoglossal just in front of the above mentioned muscle, and by infiltrating the upper pole of the thyroid gland after it has been exposed; thus in doing subtotal thyroidectomy one makes six injections, the exact technique of which can be acquired by glancing at our original paper. (A Safe and Satisfactory Method of Anaesthesia for Toxic Goiter Patients, *S., G. & O.*, April, 1934, Vol. LVIII, 737-740). The patient is given a sufficient dose of a barbituric acid compound before operation, then inhales enough ethylene so that the needle pricks are not felt after which no further gas is administered as a rule.

6. *Multiple Lesions (precedence).* A study of this subject gives, of course, only relative indications as no general rule can be laid down for every individual case, but it may be said in general that one finds the solution of it rendered easier through the contemplation of it with eight questions in mind; they follow. Is one of the three vital organs concerned? If so, the patient can live only a very few minutes unless its function be quickly restored hence such a consideration always takes precedence over any other. Is the patient's life endangered in one of the two fields under consideration? As for example, is there any intestinal obstruction? If so, one has but a few hours in which to solve this problem while, of course, it takes precedence over any other less urgent demand. Is acute inflammation of an organ one of the two problems confronted by the surgeon? If so, it may possibly require days for its solution. Is malignancy one of the two questions at issue? If so, it should not, of course, be neglected but still a very few weeks may not mean a great deal when it is recollected that we rarely see a malignant patient who has not already suffered for a year. Does one of the two conditions confronting us entail great suffering? If so, that one will be attended to first. Does one of the two greatly influence nutrition? In this event it would usually seem the better part of wisdom to put the patient on his feet before attending to any other lesion not absolutely urgent. Is one of the two a problem of the patient's appearance? One must then take into consideration his occupation. I should say that a salesman with a badly damaged eye or mouth would find it most important to have such lesions attended to while a simple inguinal hernia waited for a more opportune time. Does but one of the two maladies cause symptoms? It may be said that the one of the two which presents no symptoms at all may be well postponed until the more pressing need of the other has been met. These eight outlines convey suggestions perhaps for the individual instance but no set of general rules can be formulated which will cover all of this.

7. *Who the patient is vs. the diseases he has.* Some philosopher in medicine, probably more than one, has said: "I am not as much concerned about which disease a man has as I am about

who has the disease." The truth of this becomes apparent to a man in busy clinical life in his every day experience. Consider the matter of inheritance; it seems to govern longevity and the many family tendencies which seem most apparent perhaps in the cardio-vascular-renal system. Another phase of this same subject strikes us when the patient's age is considered. There is perhaps no better guide to choice of operation than a man's insurance expectancy at a given period while some of us of wide experience have had the age fifty impressed as a sort of "dead line" which cannot be crossed with impunity. We know the average man born today has an expectancy of 61 years and a woman of 64 years according to the very latest statistics. If this be true, one who has gone five-sixths of the way can no longer be regarded as a prime risk, a matter which is self evident and requires no further elucidation. One is influenced by his choice of an operative procedure by a history of the patient's previous diseases, none of which can by any stretch of the imagination increase his vitality or render him a better surgical risk. Occupation can well be considered by the man who advises a surgical operation. Certainly the silicosis patient of whom we hear so much today must be more prone to respiratory complications following surgery than his brother who has not been similarly exposed. The duration of a man's symptoms ought to influence the choice of a time for operation. If of long standing he cannot fail to have reduced that margin, sometimes very narrow, upon which we can encroach only with an increased hazard. The degree of invalidism is a consideration too obvious to merit more than passing mention here. The mental attitude of the patient has much to do with the success of the surgeon. One who has reached a degree of maturity in this field is distressed by the patient who goes into the hospital with his mind made up to die. One doesn't like to admit it, but the varying degree of superstition in all of us seems well founded when such a patient fails to come out alive, as sometimes happens. This consideration may be extended to the toxic goiter patient with a psychosis who in our own experience always died in those earlier years before we invariably refused operation under such conditions.

The considerations of physiologic nature which influence our choice of procedure in surgery today might be multiplied ad infinitum, hence I hope it will be quite clear that the above considerations are intended merely to outline a few of those which have presented themselves as a result of the writer's own experience.

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# WATER BALANCE IN SURGICAL PATIENTS*

**FREDERICK A. COLLER, M. D.,**
From the Department of Surgery, University of Michigan,
Ann Arbor, Michigan.

Mr. President, and Members of the Nebraska State Medical Association: My first personal experience with this matter of water balance in surgical patients was at the age of 14. I had my first known major operation at that time, and as usual, I was carefully purged for three days, which depleted me of foods and fluids. I had an anesthetic and I still have the most vivid recollection of the misery of that first night after the operation. I wanted water and they wouldn't give me any. The nurse left the room. Some friend had sent me a bouquet. I threw away the flowers and drank the water and then I promptly went to sleep and happily recovered. All of which relates the importance of water to the human mechanism.

Water comprises about 70 per cent of the total body substance. In conditions of health a person automatically cares for his water needs by response to hunger and thirst. Surgical patients or medical patients, because of disease or because of an operation, often cannot respond to these in the normal way. Under the circumstances, the physician or surgeon must give the patient the amount of fluids needed. While I have no doubt but that the average patient gets well in spite of the administration of more or less routine amounts of fluid, nevertheless for years I have had a sense of guilt when the interne would ask, "How much fluid shall we give this patient?" I would look wise and say, "Two or three liters," but I was dissatisfied because I did not know what the correct amount would be. Therefore, about three years ago we began to study this matter to see if we could find out exactly how much water the patient loses in the various aspects of disease and from this knowledge, supply the correct amount of fluid to the surgical patient.

Under normal conditions of health, there exists a balance between the intake and the output of water which results in the maintenance of the water content of the body at a fairly constant level. Without entering into a complete discussion of water metabolism, it can be stated briefly that there are two main sources of available water and three means of excretion. These can be listed as follows:

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*Guest speaker's address before the Nebraska State Medical Association, annual meeting, May 14, 1935.

Available Water

1. Fluid drunk
2. Food—diet or body tissue
   - a. Water content
   - b. Water of oxidation

Excretion of Water

1. Water of urine
2. Water of stool
3. Water vapor

The amount of fluids drunk normally varies from about 800 to 2,000 cc. per day. This intake is increased when the sweating loss is high, as with conditions of work, heat and humidity. The water available from food through its water content and water formed on its oxidation amounts to nearly 90 per cent of the total weight of the food eaten. In this manner the ordinary house diet furnishes 1,200 to 1,500 cc. of water a day. In starvation between 400 and 500 cc. of water is possible from body tissue oxidized for energy.

Water is excreted as urine in amounts that very with the fluid intake and with the losses from other channels. The water loss from the stool is comparatively small considering the loss from other channels and rarely amounts to more than 150 cc. a day. With diarrhea, vomiting, or drainage from gastric, intestinal or biliary fistulae, water losses from the gastrointestinal tract may be very high. The third normal path of water excretion is by vaporization from the skin and lungs. The water loss in this fashion is an important part of the mechanism of the regulation of body temperature. Without active sweating about 24 per cent of the body heat is dissipated by this mechanism. Under these circumstances, the amount of water vaporized from the skin and lungs varies from about 800 to 1,500 cc. daily. At high temperatures and humidities, the vaporization of water may account for 100 per cent of the total heat dispersed.

We first studied water losses during the time of the operation, and during the immediate four-hour recovery period following the operation. The essential finding was a total fluid loss by blood, vomiting, urine and vaporization averaging about 1 liter for this period. The water vaporized comprised about 70 per cent of this total. When the old-fashioned "ether bed" was abandoned and the patients were shifted from the operating table to a bed with only the usual amount of covering, a definite reduction in the amount of water lost by vaporization occurred and the patients were infinitely more comfortable. As a consequence of this diminished loss of water by vaporization, more water was available for the kidneys and the output of urine was increased. We feel that it is much better for the unconscious patient to have the same amount of covering that he would choose of his own volition. The old-fashioned "ether bed" causes loss of water that would be more valuable to the patient if used for other physiological purposes.

Investigation of water losses was continued to a study of the water exchange of surgical patients over several days' time and with a variety of surgical lesions. The first observations were made on simple surgical cases otherwise in good health and subjected to comparatively short operations such as the repair of an inguinal hernia. The water of vaporization of these patients was approximately the same as that lost by normal individuals carrying on a general routine of light activity, that is, from 1000 to 1500 cc. a day. The day of operation is always a period of moderate dehydration, largely as the result of the sweating loss in the operating room and the postoperative recovery period and from the fact that water is withheld for a number of hours before the operation. On the day following operation the patients drink much larger amounts of fluid than normal and quickly restore their water balance.

The influence of fever on the water losses of surgical patients was then studied. It was found that this increased the total output of fluid by considerably increasing the amount of water vaporized from the skin and lungs. The average of several patients investigated showed that with fever the amount of water vaporized from the skin and lungs is close to 2,000 cc. a day. In particular instances when the environmental temperature was high or when the fever was particularly high, nearly 3,000 cc. a day was lost in this fashion. This important channel of water excretion is commonly forgotten in estimations of the water needs of surgical patients.

Three patients with hyperthyroidism were then studied. Since there is an increased heat production associated with this condition there must be a compensatory heat loss and one would suppose that the water loss by vaporization would be greater than normal. Under the usual conditions of bed rest and routine treatment, for these patients, the water loss by vaporization averaged about 1,800 cc. a day. By a study of a patient with hyperthyroidism and a normal subject under the same conditions, it was shown that the increased loss of water by vaporization for the hyperthyroid patient was not due to any mysterious process associated with the glandular disturbance but was simply due to the fact that there was more heat to dissipate and consequently larger amounts of water were used by the heat dissipating process.

I have tried to emphasize that while the normal person at rest or light activity loses from 800 to 1,500 cc. of water by vaporization from the skin and lungs, the surgical patient with infection, fever, or hyperthyroidism or under abnormally warm environmental conditions will lose by this process from 1,500 to 3,000 cc. per day, a good average being about 2 liters a day. The abnormal losses of fluid are important sources of water depletion to surgical patients. Vomiting, diarrhea, drainage from intestinal and biliary fistulae or massive exudations from inflammatory surfaces such as burns, may carry away large amounts of fluid daily. With the water loss in these instances there is also an important loss of body fluid substance. From the standpoint of water alone the losses are serious because they carry out no physiological purpose.

If all of the water losses of the body are not considered in estimations of the water requirements of surgical patients, a depletion of body fluids is likely to occur. In a recent study we endeavored to find out how much fluid may be lost by the body to produce serious effects. For the carrying out of the investigation, it was decided that insufficient water for normal kidney function was a serious effect of dehydration which we could determine by following the level of the blood non-protein nitrogen. The water balance of a healthy young adult was done over a period of several days. During part of this time dehydration was produced by restricting the intake of water to the point that the output of urine was insufficient to enable the kidneys to excrete the normal waste materials and as a consequence, the blood non-protein nitrogen increased from the preliminary level of 32.3 mgm. per 100 cc. to 45.7 mgm. At this time the subject showed all of the classical signs of dehydration. His eyes were sunken, his skin was hot and dry, his tongue showed no moisture, there was definite evidence of blood concentration. The urine voided during this period finally reached a specific gravity of 1.041 which is a record in our clinic for a urine specimen free of sugar and containing only a trace of protein. The effort of this healthy young man's kidneys to excrete the waste materials under the adverse conditions resulted in a temporary mild kidney damage as shown by the trace of protein in the urine and the presence also of casts and erythrocytes. The loss of body fluid to produce these serious effects was approximately 4,000 cc. which amounted to about 6 per cent of his total body weight. A second subject in a similar study showed the serious effects of dehydration from a corresponding loss of body fluids, that is an amount equal to about 6 per cent of his total body weight. Recently we have used this 6 per cent figure in calculating the water requirements of the body tissues in several dehydrated patients. This estimation along with a consideration of the amount of fluid for vaporization, for abnormal losses, and for a reasonable output of urine, gave us a rather exact indication of the amount of fluids needed to restore the dehydrated patient to the normal condition. It is important to remember that the maintenance of a satisfactory water exchange is fundamentally the maintenance of a satisfactory urine output. The kidney functions with the water available after all the other channels of water excretion have been cared for. For the sick individual I consider a satisfactory urine output to be about 1,500 cc. a day. The reason for selecting this volume of output is simple. Normal kidneys working at maximum concentration require very close to 500 cc. of water a day to excrete an average amount of waste material. In extensive kidney disease where the concentration power has been considerably impaired, three times as much water is required to carry out the same function. The 1,500 cc. volume then is ample to provide for the kidney function of practically all individuals.

There are a number of other questions which come up here. I have mentioned only water. It is important to realize that when body fluid is lost, body fluid substance is lost at the same time. The work of excellent investigators has served to emphasize the loss of important electrolytes, chiefly sodium and chloride ions, when fluid is lost from the gastrointestinal tract. Fluid lost through the vaporization of water from the skin and lungs contains very little salt, this loss being insignificant in surgical cases. When it is necessary to administer fluids parenterally to patients, it is important to know what kind of fluid to give. An abundance of water can be best supplied by the use of a 5 per cent glucose solution. The glucose is rapidly oxidized and the water is left available for all body needs. It is our custom to use saline solution for the parenteral administration of fluids only when blood chemistry studies have shown that salt is needed. Too much salt solution may be the cause of edema.

It is not inferred that the usual surgical patient does not get sufficient fluid. Clinical experience has shown that patients usually do well with fluid intake given on clinical indications alone. The question is frequently brought up of whether too much fluid can be given. There was an interesting article in a recent number of the *Journal of the American Medical Association* telling of water intoxication. In the clinical case cited the patient absorbed 9 liters of fluid by rectum. About 2½ liters of this fluid were accounted for and it was assumed that the remainder of the fluid was the cause of the patient's death. In the brief data given, several notations were made of profuse perspiration during the whole time of the administration of the 9 liters of fluid. From our studies we know that this profuse perspiration could have accounted for a loss of from 3 to 4 liters of water. If this is taken into account, there is little left of the 9 liters of the fluid to produce water intoxication.

From our studies of the water losses of surgical patients we have been able to compute an give fluids in amounts that approximate rathe accurately the patient's physiological needs. I is uncomfortable to have a needle in the veins or a tube in the rectum. The patient is entitle to sleep, as well as water and food, so we try t give the amount of fluid the patient requires There is no way of indicating the exact amoun until you figure out this simple computation which will give you very easily the amount o fluid any particular patient needs at any particular time.

I thank you.

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# OPERATIVE TREATMENT OF PATELLAR FRACTURE*

CHAS. G. McMAHON, M. D., F. A. C. S.,
Superior, Nebraska.

## INTRODUCTORY

Modern machinery and transportation have enormously increased fracture incidence. The fracture ratio in rural communities has been approximating that of industrial regions for several years past. Fractures of unusual type twenty years ago were of interest mainly to specialists in industrial surgery. Today, any Nebraska surgeon may encounter a fracture of any variety, deposited literally at his door by modern transportational facilities. For these reasons we report our experience with a series of patellar fractures treated operatively.

## MATERIAL

This study is based on cases from the writer's service at the Brodstone Memorial hospital at Superior, Nebraska. The Brodstone is an unusually well equipped community hospital in a typical farming town of 3,000 people. The cases all came to us as emergencies, the furthest from ten miles distant. All fractures were due to automobile accidents and all were young people from 18 to 25 years of age. In evaluating the results recorded it is only fair to state that the Brodstone has outstanding advantages in the handling of traumatic surgery, due to long experience in industrial surgery on the part of the superintendent and some of the nursing staff. The writer's experience was gained in 14 years of surgery in industrial hospitals for large copper and iron mining companies. I wish to acknowledge my indebtedness to the Brodstone hospital and staff. Without their skilled co-operation such results would not be possible.

## OBJECTIVES

In treating patellar fractures success depends on the attainment of three major objectives:

1. Apposition of fragments close enough to preserve mechanics of important tendon.
2. Union firm enough to withstand action of powerful muscle group.
3. Preservation of needed range of motion in an important joint.

A glance at the x-rays of case one will tell how well operative treatment accomplishes these ends.

## ADVANTAGES OF OPERATIVE TREATMENT

1. Permits correction of injuries to capsular ligament and quadriceps extensor tendon.
2. Insures close apposition of bone fragments.
3. Permits removal of detached fragments of bone.
4. Permits removal of blood and clots from joint.
5. Avoids malunion, adhesions, circatrical contractions of capsular structures and other mechanical interference with joint action.

## DISADVANTAGES

Sepsis. Serious, if it occurs. Rare, with proper equipment and technic.

## TIME FOR OPERATION

Prefer the Murphy dictum of ten days to two weeks to allow protective walling off and restoration of tissue immunity following initial trauma. Our longest wait was thirteen days and the shortest, nine. Average was eleven days. During this period the leg should rest on a splint and the surgeon can amuse himself trying to hold apposition by conservative measures. A check x-ray after eight or ten days will usually result in a decision to go on with operative preparations.

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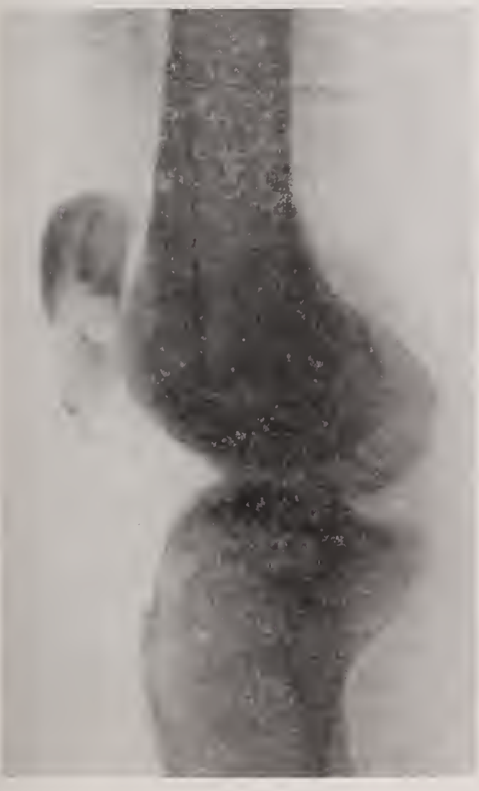
*Presented before the annual meeting Nebraska State Medical Association, Omaha, May 14-16, 1935.

### PREPARATION FOR OPERATION

Careful preparation is essential in these cases. Our routine follows:

1. Shave leg day before operation.
2. Wash with green soap.
3. Paint with 1 to 1000 alcoholic solution merthiolate.
4. Apply sterile dressing.
5. Paint with iodine before operation.

One of our cases was complicated by a skin wound. We gave combined tetanus and gas gangrene antitoxin, cleaned the wound thoroughly and used iodine freely and immediately began irrigations of chlorazene solution every two hours. At the end of seven days we took smears from the wound daily. We found no germs in oil immersion fields for three successive days and operated. Healing was without incident. This method was learned in the clinic of Dr. Sherman at Pittsburgh, years ago. I have found it a most reliable index in determining the time for secondary closure of infected wounds. Immediate inauguration of chlorazene irrigations in potentially infected wounds keeps them surprisingly clean, as all men experienced in traumatic surgery know.



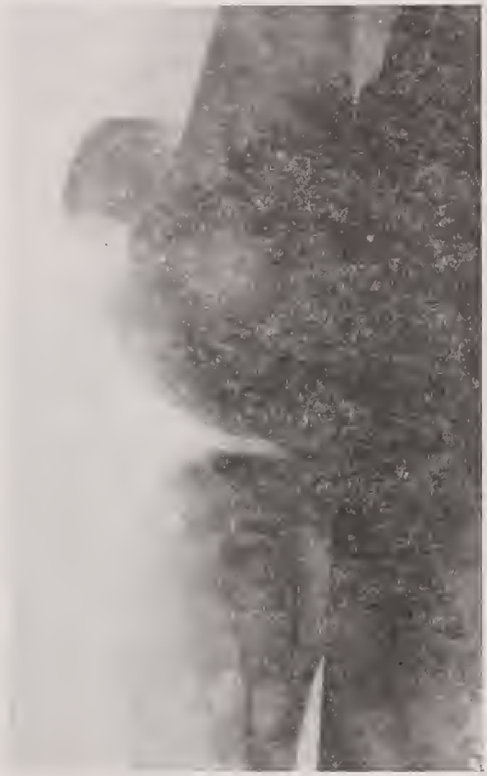
X-ray No. 1. X-ray one-half hour after injury.

### OPERATIVE METHODS

Some of the better known methods of operative treatment are as follows:

1. Drilling fragments and suturing with wire.
2. Beef bone screw. (Henderson).
3. Encircling wire. (Magnuson).
4. Imbrication method with early motion. (Andrews).
5. Blake Operation. Absorbable sutures.

A glance at the names will show that some brilliant surgeons have been interested in the problem of patellar fracture. Suturing through drill holes with wire is little used at present. Henderson and Magnuson, brilliant surgeons both, get fine results with their methods, which permit early motion. Andrews obtained satisfactory results with his method, also permitting very early motion. Our experience both in this series and in our industrial surgical work has been entirely with the Blake operation and we will confine our description to it. To paraphrase Dr. Paul Magnuson: "Other methods may be better. This works."



X-ray No. 2. X-ray 10 days after injury. Separation of fragments increased markedly. Shows failure of non-operative treatment.

### BLAKE OPERATION

1. Incision with convexity downward.
2. Dissect back ample flap to freely expose fracture.
3. Block skin carefully. Discard all instruments used in exposing fracture site. Change gloves.

4. Clean out mess between fragments. (Cotton's Bostonese).

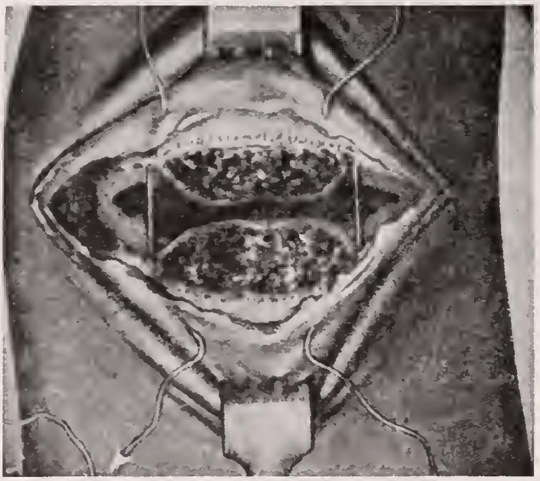
5. Insert Blake key sutures of Kangaroo tendon, being careful not to penerate joint.

6. Close remaining tear with mattress sutures of No. 2 chromic catgut, imbricating if possible.

7. If fragments are comminuted, an encircling suture of Kangaroo tendon is useful.

8. Close skin wound carefully.

To the recently graduated interne, settled in a farming town, we would not recommend this operation to launch a major surgical career. Performed, should occasion offer, on the village banker or the local superintendent of schools, results might prove disappointing. Success requires experience, in surgery of this type. We have all marveled at results secured by pioneer surgeons under adverse conditions, in operations in prairie farm houses. This operation would not go well on a farmhouse kitchen table with "The neighbor's woman pourin' the chloroform and the hired man holdin' the lantern." It requires a well equipped operating room and a personnel knowing all about what the equipment is for. Personally, in beginning a bone or joint operation inspiration is drawn from an episode in the early boyhood of a Minnesota classmate. One Sunday near Christmas his Sunday school was invaded by tough kids from across the tracks, who whispered and laughed during services. Shocked to the depths of his Presbyterian soul, he hissed: "This is no place to come to raise hell."



Blake operation (after Scudder). Note key sutures and method of insertion.

AFTER TREATMENT

1. Splint as shown. No motion for three weeks.

2. Beginning fourth week, remove splint daily for very careful passive motion through slight range. Begin gentle massage.

3. Fifth to tenth week. Daily massage for minimum of fifteen minutes, guardedly increase passive motion.

4. Tenth week to end of twelfth. Remove splint for massage and passive motion twice daily. Begin guarded active motion after end of tenth week.

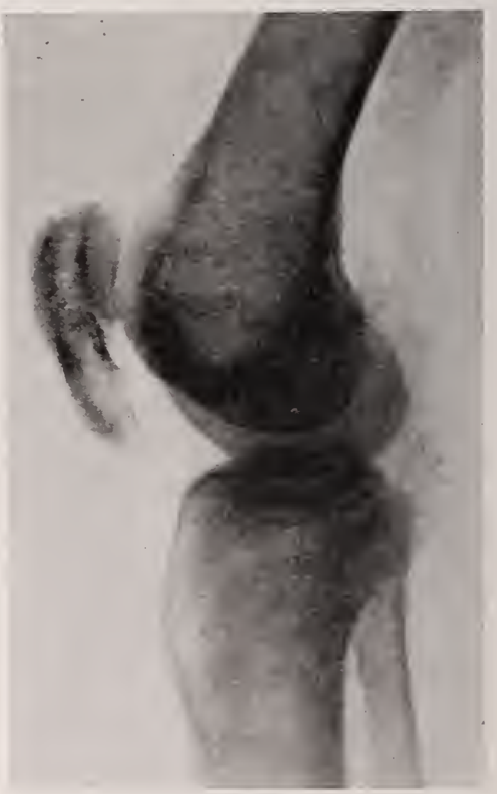
5. Discard splint. Wear ACE bandage for support. Begin walking. Keep up massage twice daily. Knee should now have flexion of between 60 and 90 degrees.

6. At end of six months, discard bandage. Knee should now have almost normal range of motion. Will, for next year at least, improve steadily.

We regard after treatment as very important and think the surgeon will do well to attend to the details himself for at least the first seven or eight weeks.

LENGTH OF DISABILITY

Depends on nature of work. One of our cases, a skilled office worker, was back on full duty in six weeks. She was on crutches, of course, but was able to attend to all her duties. Another case, doing highly specialized work requiring very strong flexion and vigorous extensor action of the operated knee was off five months. Three to three and a half months enables most cases to resume ordinary work.



X-ray No. 3. X-ray four years, eight months after operation.

RESULTS

A patient with a good result following operative treatment should be able:

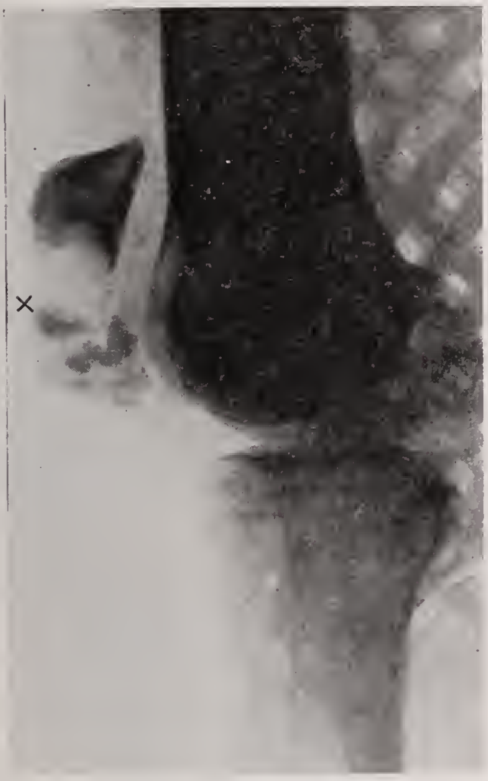
1. To follow any work or recreation pursued before injury.

2. To show practically normal range of motion in knee.

3. To use injured knee as needed without weakness or discomfort.

Judged by these standards our results have all been very satisfactory.

The accompanying x-ray shows how one of our cases came through a very strenuous test of the union, following his operation. About eleven months after operation he fell eighteen feet, landing with the operated leg doubled under him.



X-ray No. 4. X-ray 24 hours after marked injury. Small fragment was entirely loose from all attachments and removed at operation. Note severity of comminution.

He strained the tibio-fibular ligament until a sprain fracture was produced but the patellar repair held. We do not recommend this test as a routine but thought it of interest.

## SUMMARY

1. Unusual fractures are no longer peculiar to communities maintained by what were once called "hazardous occupations."

2. Operative treatment of patellar fracture presents many advantages, making it the procedure of choice.

3. The operation demands careful and intelligent technic in the operating room personnel and wide experience in the surgeon.

4. After treatment is most important. Personal supervision by the surgeon is almost imperative.

5. The Blake Operation, using absorbable sutures, has been most satisfactory in our experience.

6. As Dr. Paul Magnuson says: "Other methods may be better. These work."

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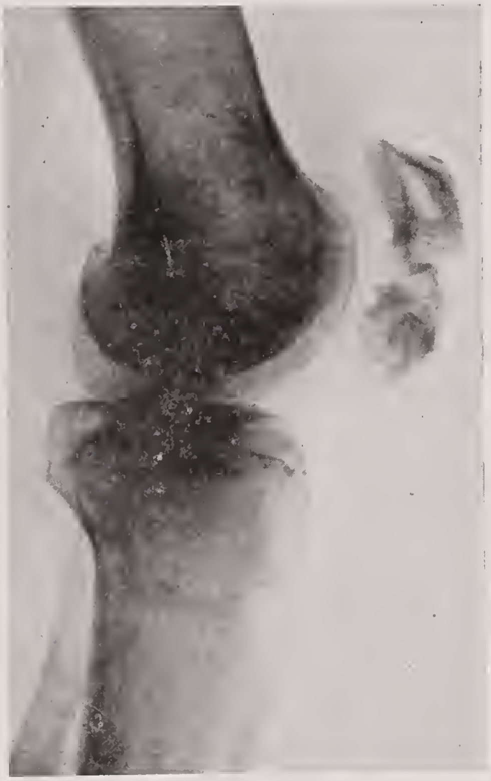
## DISCUSSION

DR. J. E. M. THOMSON, (Lincoln): I was in hopes Dr. Johnson would be here to discuss this.

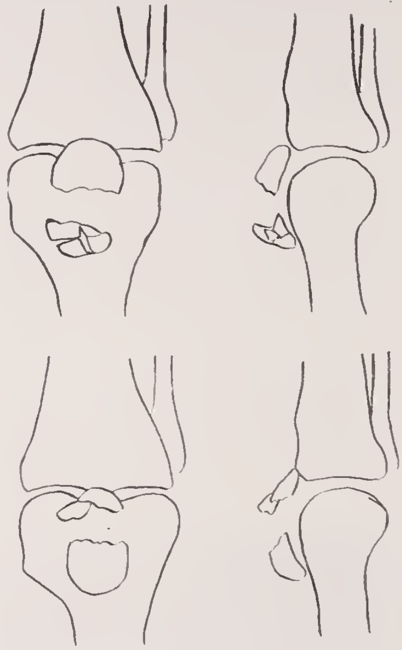
First, I want to commend Dr. McMahon on his splendid presentation of a subject that is indeed vital to everyone who lives anywhere in the United States.



X-ray No. 5. Eleven months after operation patient fell 18 feet, landing with operated leg doubled under him. Sprain-fracture of tibio-fibular ligament (upper) and severe sprain of ankle. Patellar repair held perfectly. Note union of comminuted fragments.

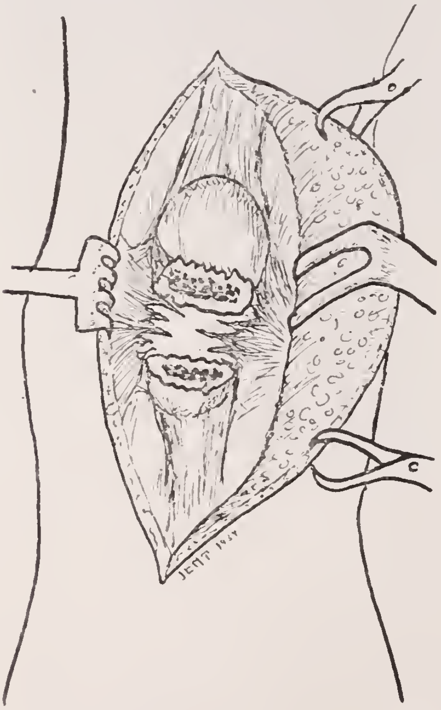
Fractures of the patella are increasing with the number of road accidents which occur. I agree perfectly with everything Dr. McMahon mentioned with respect to this subject, and particularly the operative features he mentioned.

Fractures of the patella comprise one of the earliest operations approached by surgery. The operation in which I have been extremely interested is one I presented before the convention of the American Medical Association last year, and applies to a certain group of fractures of the patella—not to the great mass of them—in which there is one large fragment, and the others small or comminuted. One of the greatest problems we meet in fractures of the patella is manifest by one of the slides Dr. McMahon showed, because of the fact it is difficult to get union.

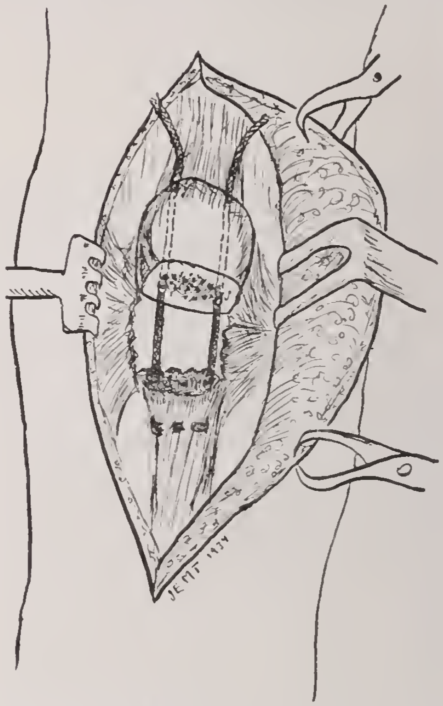


Slide No. 1: Fractures in which there is one large fragment and one or several small fragments, either at the upper or lower pole of the patella, are those on which we have successfully carried out this procedure.

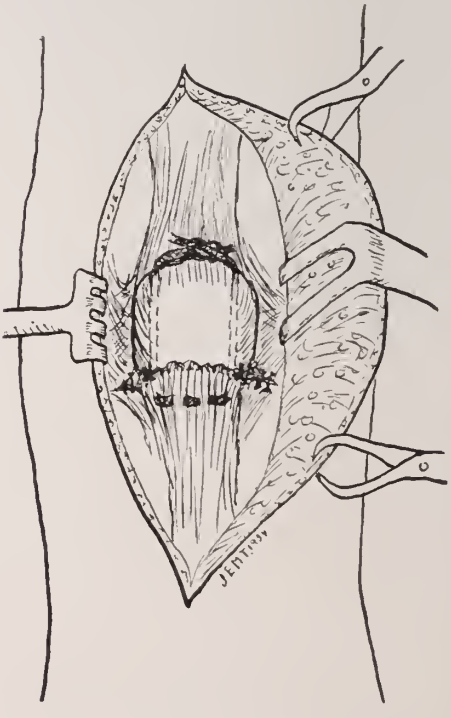
The patella is a sesamoid with but slight osteogenetic qualities. In the literature on the subject of fractures of the patella nearly every author calls attention to the fact that these fractures are prone to



Slide No. 2: Through a curved vertical incision, extending above and below the site of fracture, the skin is reflected back over the patella and the fragments are exposed. The rough edges of the soft tissue of the large fragment are removed, and with a pair of shears or with a scalpel the small fragment is removed.

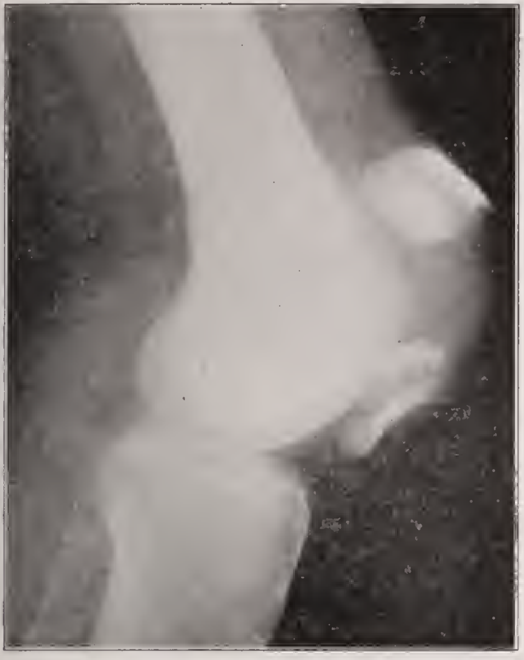


Slide No. 3: Through two drill holes in the body of the larger fragment kangaroo tendon or fascial strand is passed. Then this is woven into the lower patellar tendon and back up through the body of the patella. The upper patellar fragment and the lower patellar tendon are closely joined by the strands, which are tied at the upper pole.

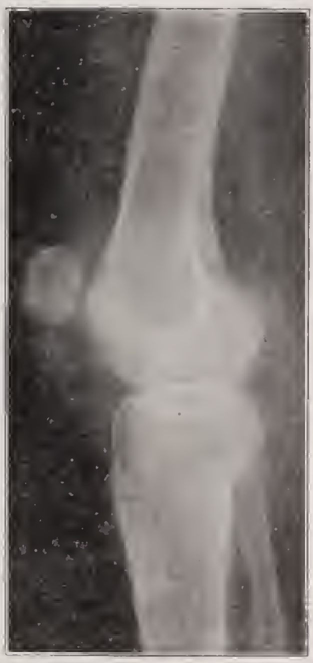


Slide No. 4: Care is taken now to close the lateral aspect of the patella and the soft tissue structures. The wound is then closed; dressings, a sheet wadding bandage, and then a canton flannel bias bandage are applied. In a few days the patient is allowed to be up on crutches, and at the end of a month or six weeks disability should have entirely disappeared, and the patient is again back on the job.

refracture and are slow to unite, and often end in malunion. A long period of immobilization and disability is usually demanded to obtain union. It occurred to me that if it were possible to convert this operation from one in which an effort was made to gain union of fractured fragments that had very little osteogenetic resources into one which involved the union of soft tissue structures, we could simplify the operative procedures, the method of treatment, and markedly diminish the period of disability.



No. 5



No. 6

Slides, Nos. 5 and 6: Slides number 5 and 6 are lateral x-rays of 5 and 6:

(5) A typical case in which this technique is indicated.

(6) The x-ray of number 5 after operation.

The lantern slides illustrate first, the types of fractures of the patella to which this method is particularly adaptable; and second, the technique of operation.

DR. HERMAN F. JOHNSON, (Omaha): I was fortunate in having a man in the office this afternoon who presents this problem of fractures of the patella, as discussed by Dr. Thomson. I am very sorry that I was not here in time to hear the essayist's paper, but wish to show the end result in this case.

Case presentation: This gentleman of 76 years, is the father of a doctor, who on December 10, 1934, sustained an injury to his right knee when he fell striking the patellar region on the ledge of the kitchen door. Disability was partial, he continued getting about with the aid of a cane and did not think medical attention was necessary until seven weeks after his injury, when he was first seen by us. At the time of our examination, he walked with the aid of a cane and had difficulty, particularly in going up or down stairs. The right knee presented thickening about the patella, with a definite defect at his lower third. It was impossible for him to actively extend the leg on the thigh.

X-ray examination revealed two comminuted fragments, which constituted the distal third of the patella. The large upper two-thirds was regular in contour and riding somewhat high. There was no evidence of repair and there was some osteoporosis noted in the two distal fragments.

We felt that here excision of the two fragments with a repair of the lacerated aponeurosis was the procedure of choice. This operation was performed approximately six months ago, using a long curved antero-lateral incision made so that we could extend it up the thigh for the purpose of obtaining fascia lata. The operation was performed under spinal anesthesia, with absolutely no shock. After removing the two small fragments and excising the scar tissue, we placed the remaining portion of the patella under tension by pulling it downward and suturing the patellar tendon up over the lower margin of the large patella fragment. A strip of fascia lata, measuring approximately 2 by 5 inches, was then brought under the fascia of the patella, over the defect and sutured to the patellar tendon and above to the quadriceps extenso. Careful repair of the lacerated aponeurosis was then performed, and he was placed in molded lateral splints in complete extension. His post-operative course was unusually fine and he left the hospital one week after operation. He has not been seen since this time, until reporting to the office today.

As you note, he walks with a slight limp, there is no gross deformity in the knee region, the wound has healed very satisfactorily and flexion of the knee is possible to 80 degrees; that is, 10 degrees less than right angles. The patella is freely movable and not riding high. He also has good power of the quadriceps so that he is able to actively extend the limb and also go up and down stairs, bringing the right foot up first in the former maneuver and the left first while going down. He must, however, be trained in doing this, as he has been accustomed to protect this joint, which is entirely a matter of habit. Incidentally, this is a good test of quadriceps power and cannot be performed if there is a tear in the patellar tendon, fracture of the patella, or laceration of the quadriceps femoris. We think this is a very satisfactory end result considering a man of 76 years, with treatment instituted seven weeks after his injury.

I also have with me some x-rays of a patient, who at approximately the same date sustained a comminuted fracture of the patella, in which the upper half is fragmented. Here, the fragments were left in place and an encircling phosphor bronze wire used for fixation.

This patient's end result, in spite of her age which was 20 years less than the patient we have demonstrated to you, is not entirely satisfactory. She has only 45 degrees flexion and recent x-rays show a fair amount of arthritic change. If we had this procedure to do over again, we would do as Dr. Thomson has suggested; namely, excision of the comminuted fragment and a repair of the soft tissue laceration. However, it is my opinion, that where you have a transverse fracture of the patella with two fragments of approximately equal size, it is better to leave the fragments in, repair them with either kangaroo tendon or an encircling phosphor bronze wire, and carefully suture the lacerated aponeurosis.

DR. JOHNSON: In discussing the use of the encircling wire fixation, I failed to mention that this is always removed and can be done very easily if the knot is placed beneath the incision and by the injection of a small amount of novocain, a small nick can be made in the skin and the wire removed with ease. We have used Kangaroo tendon on several occasions, but as this has some tendency to stretch, good fixation is not always obtained, and it is not safe to start flexion motions as early as if the more rigid wire type of fixation is used.

DR. W. L. SUCHA, (Omaha): I am sorry I did not get to hear the essayist. Like Dr. Johnson, I had my time scheduled to be here for 4:30. I got in at the tail end of his remarks, and the discussions, which have practically covered the field.

The question of fractured patellas is becoming more or less standardized now, particularly among men doing a lot of these fractures. We are getting away from the unabsorbable material. We are learning that the union or nonunion of a patella has little to do with the stability of the joint. After all, as Dr. Thomson said, it is only a sesamoid; therefore, it has very little regenerative power. There aren't many latent osteoblasts which we find in other bones. Being a sesamoid bone, if it were a block of wood it would answer the same purpose, mechanically.

The whole secret is to give these people good union of their patellar tendon. That is a hard thing to do if you have a lot of small fragments of bones and try to preserve them. That is why Dr. Thomson advocates the removal of the small pieces of bone and making it a soft-tissue union. If we will keep in mind that the soft-tissue union is the important thing, together with the proper contour of the bony patella for a fulcrum, then theoretically the problem is solved. We are not apt to get a good soft-tissue union if we leave a lot of disarranged small fragments; either will we have a good fulcrum.

If fragments turn with what was the inside, out, it will always be tender to the touch, to pressure; and in addition, if the underside is rough, it will tend to maintain a constant traumatic arthritis, and there will not be a good range of motion.

I am very much enthused over Dr. Thomson's idea of cutting away a lot of the debris if you have one good fragment. That leaves an excellent result, as this case shows. In my hands it has given me the best results. If I can save one good-sized fragment to act as a fulcrum and have a decent contour, I am sure to get a good soft-tissue union. I use the kangaroo tendon, as Dr. Thomson does. Where I have two fragments of equal size, I also use it. I sometimes use the operation of closing the soft tissue, paying no attention to the fragments. But if leaving two, I like to have the underside closely approximated by making the holes diagonally down and threading the kangaroo tendon down, and up on the other side then back in a mattress suture fashion that holds the lower surfaces of the patella together; then I bring the upper edges together.

I always leave only one fragment unless it is almost cleft in half. Perhaps it is well to take one out then. Where it is two-thirds and one-third, I take the one-third out always. Then depend on soft-tissue union for strength. The patellar tendon would be just as strong without a patella as with one. It must have the patella to come up over and give a better leverage for extensor power.

DR. McMAHON, (closing): I do not know that I have much to add. The matter has been thoroughly covered. I will say, while bony union is not essential and you may get as good results without, in a healthy individual with a comminuted fracture, if you use an encircling kangaroo tendon suture, you will be surprised at the union you will get. Personally, I do not favor the use of wire for repairing. I think the kangaroo tendon will work as well, and you are as well off to get away from drilling the fragments.

After fourteen years in industrial surgery, I wish to say that if on the Mesaba Iron Range of Minnesota you were satisfied with 45 degree flexion after operating a miner with a broken patella, the United States Steel Corporation would have been taken over by the ambulance chasers of Duluth years ago.

One feature that has not been touched on is after treatment. You must look after that yourself. You must take off the splints at the end of three weeks and massage fifteen minutes by the clock every day. After eight weeks, you can get a relative to take the splints off once a day, and do it yourself once a day. Our cases under this regime have practically normal function.

# PRIMARY CARCINOMA OF THE COMMON BILE DUCT—I

## CLINICO-PATHOLOGICAL CASE REPORT

Mr. R. C., a white male, age 64, was perfectly well until six weeks before his admission to the hospital May 11, 1935. He first developed diarrhoea which was followed in a few days by jaundice. This became progressively worse. Abdominal distress and distension developed later and was associated with loss of weight and appetite. At the time of admission physical examination revealed marked jaundice and abdominal distension. The liver extended about four inches below the costal margin. An exploratory laparotomy was done May 13, two days after admission. At this time the peritoneal cavity was found to contain a large quantity of serous bile-tinged fluid and there was a hard nodular mass involving the gallbladder and the adjacent peritoneum and omentum. A section of one of the omental nodules was made and was found to be adenocarcinoma. Following operation his condition became progressively worse and death occurred May 18, 1935.

The autopsy was performed the same day as death occurred. A large nodular tumor mass was found occupying the region of the common bile duct. This mass was not directly connected with the pancreas and it completely occluded the cystic as well as the common bile duct. The regional lymph nodes were filled with hard tumor tissue. The under surface of the liver in the region of the gallbladder fossa showed direct extension into the liver substance for a distance of about 7 cm.

The pleural surface of the right lung showed minute, pin head sized areas of metastasis though there was no evidence of metastasis in the substance of the lungs. There was also a terminal bronchopneumonia and a benign prostatic hypertrophy. Sections of the tumor tissue showed a well differentiated adenocarcinoma. Anatomical lesions: Primary carcinoma of the common bile duct; extension to liver; jaundice; bronchopneumonia; metastasis to the pleura; and middle lobe hypertrophy of the prostate. The sections showed adenocarcinoma.

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From the Museum of the Lancaster County Medical Society.

# INTERCHANGEABLE SIGNS AND SYMPTOMS BETWEEN CIRCULATORY AND DIGESTIVE SYSTEMS*

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Interchangeable signs between circulatory and digestive systems may be divided into three groups: (1) abdominal signs arising from organic heart disease, (2) cardiac signs arising from diseased abdominal organs, (3) signs and symptoms arising from functional or pre-organic disturbances of either system.

The first group is well known and will be briefly discussed, only to clarify certain symptoms arising in the other groups. especially the third. The abdominal signs or symptoms of organic cardiac disease divide themselves into those of the congestive type. and those caused by disease of the coronary arteries.

Gastric symptoms are the chief complaint in many cases of cardiac decompensation.

In the usual sequence of congestion, stasis is first evident in the pulmonary vessels, followed soon by stasis in the portal system. The latter leads to congestion of the liver. the stomach and the bowels, resulting in decreased motor, secretory and absorptive functions. This gives rise to such symptoms as anorexia, nausea, vomiting, eructations, tympanites, etc. The accumulation of gas is favored, (1) by retarded or impeded peristalsis, (2) by fermentation due to stasis of bowel contents, and, (3) by decreased gas absorption due to portal venous stasis. Possibly the amount of intestinal gas normally absorbed, and eliminated by the respiratory system is not fully appreciated. The secretory functions are also impaired, as evidenced by the diminuton or the lack of hydrochloric acid. Symptoms of fullness, pressure. heaviness, etc., in the upper abdomen, due to a combination of above factors, are frequently very distressing. These often result in increased dyspnoea. It is frequently noted that diseased hearts are more embarrassed by a full stomach than by moderate exercise.

Congestion rarely leads to gastric hemorrhage with a normal stomach. When it does occur, it is usually due to esophageal varices. A co-existing peptic ulcer and gastric stasis may give rise to a large hemorrhage. Such a case was recently seen by the author.

Mrs. N. E. D., age 54, presented findings of an advanced mitral stenosis. The cardiac symptoms were of twelve years' duration. Her cardiac capacity was such that she was unable to carry on any physical activity without discomfort. Her liver was enlarged to 4 inches below costal margin. On February 20, 1934, she had a massive gastro-intestinal hemorrhage indicated by grossly melanotic stools, lasting fourteen days. She also vomited blood. Gastro-intestinal x-ray showed a duodenal deformity. For twelve years she had had recurrent attacks of epigastric pain before and two to three hours after meals.

Thrombi of spleenic artery occasionally occur in arteriosclerotic cases. This artery, as the seat of arteriosclerosis, is only exceeded by the ascending and arch aorta. Difficult and painful swallowing is occasionally noted with enlargement of left auricle. This is more frequently present in mitral stenosis.

In coronary artery disease the circulatory disturbance is usually of sudden onset, and its congestive features may be minimal or not apparent. The circulatory equilibrium is suddenly and violently disturbed, without opportunity for compensatory readjustment. Consequently, while these changes are apparently minimal, the effects are maximal. The acute liver congestion may cause acute pain in the right quadrant, due to a rapid distention of the hepatic capsule. The acute, sudden, slight gastric stasis, together with reflex nervous impulses, causes marked upheavals in the stomach, such as nausea, vomiting and distention. In addition. the pain of coronary artery disease may be reflected downward to the abdomen and thereby closely simulate the pain from an upper abdominal organ. The differentation is frequently difficult.

In the second group of cases, the diseased abdominal organs produce symptoms, apparently referable to the heart. Ulcers, dilatation and hernia of the esophagus, ulcers of the cardiac end of the stomach, and diaphragmatic hernias, have a radiation of pain similar to that of cardiac origin(1). The pain caused by ulcers of the stomach penetrating to the pancreas, may radiate to the precordium. This has also been noted after gastric resection. However, ulcers and carcinoma of the stomach rarely influence heart function and are less apt to cause confusion than the functional gastro-intestinal disturbances.

Gallbladder disease most frequently mimics coronary artery disease. Pain may radiate to the xiphoid, the lower sternum, the right shoulder, even to the precordium or the left shoulder. This, together with the usual accompaniment of gastric distention, with its resulting effect on the heart action may present a picture closely simulating an acute coronary accident. The following case presented such a problem:

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*Read before Nebraska State Medical Association May 15, 1935.

October 14, 1931. J. E. M., age 59. Noticed some shortness of breath while on a hunting trip, also indulged in a heavy meal. The next morning while at stool became dizzy, broke out in a sweat and became very anxious. These symptoms completely subsided in three days. In summer of 1932, again after indiscretions in diet, had a similar attack attended by pressure pain under lower sternum. Complete examination, including electrocardiogram, roentgenological examination of heart and gastrointestinal system, and gallbladder visualization, were negative. A probable diagnosis of angina pectoris was made. During the following year, he had many attacks of epigastric and lower thoracic pain. These were described as a "pressure like being pushed up with a jack." This extended from the apex of the epigastrium through to the back and the interscapular region. There was no prostration. There was no tenderness or rigidity over gallbladder region at any time.

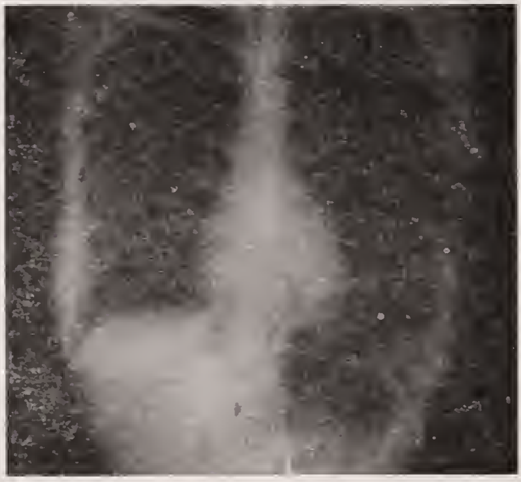

Fig. 1. An antero-posterior view showing the relation of an inflated stomach to the diaphragm and the heart.

Attacks were relieved by belching and passing large quantities of gas. These attacks always occurred at night. These atypical symptoms of coronary artery disease finally lead to the conclusion that the seat of the trouble was sub-diaphragmatic. A gallbladder visualization at this time showed suggestive evidence of dysfunction. On October 31, 1933, a gallbladder with a thickened, fibrous wall (4 mm.), containing four calculi (0.5 cm. in diameter), was removed, together with a fibrous adherent appendix. The operation to date has relieved this symptom complex.

The third group of cases, presenting the signs and the symptoms of heart disease, arising from functional or pre-organic disease of the gastrointestinal tract, was first described by Rhoemheld in 1912 under the caption of "Gastro-Cardiac Symptom Complex"(2). These patients are convinced that they have grave heart disease, and are very "heart conscious." The symptoms presented by this group are palpitation, rapid forceful heart action and, at times, extra systoles. There is a sensation of pressure, crowding and sticking in the region of the heart, more particularly along the left costal margin. The symptom complex is anginoid in character. In some instances amounts to a precordial pain, which may even radiate to the arms. There may be varying degrees of dyspnoea. Usually there is an inability to take a deep breath, as a result of crowding. Belching, nausea, vomiting, hiccough, faintness and giddiness are frequently mentioned. The history is suggestive, rather than typical of heart disease, although it may be sufficiently characteristic to present difficulty in differentiation. These symptoms are usually present after meals, and are more dependent on the amount, than the kind of food. Anxiety, incident to these symptoms, greatly intensifies them. Even normally the blood pressure and the pulse rate may be increased after meals. For the above symptoms to become apparent there must be a nervous lability, as identical conditions may produce no symptoms in different individuals. The stomach and the heart are supplied by the same nerves. The afferent stimuli from one organ may be transmitted by efferent nerves to another so that a certain type of stimulus in the stomach may give a certain type of response in the heart. An anacidity is associated with a simple tachycardia or even a paroxysmal tachycardia, while bradycardia and extra systoles accompany a hyperacidity. The latter is due to a vagatonic influence.

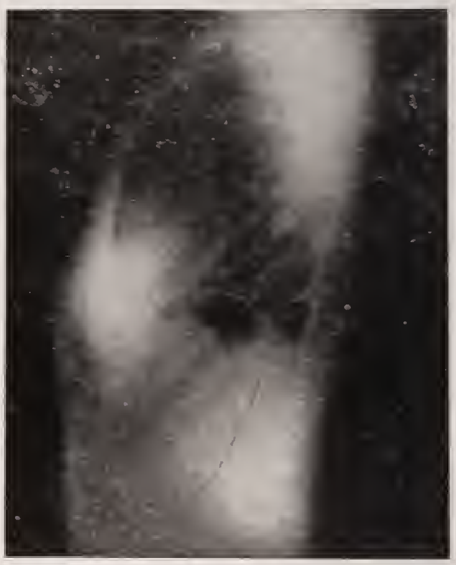

Fig. 2. A lateral view showing the relation of an inflated stomach to the diaphragm and the heart.

The chief factor causing this symptom complex, according to Rhoemheld and other writers, particularly the Germans, is a cardiac displacement, due to an elevation and an impaired mobility of the diaphragm. A distended stomach (by gas or food) or a distended colonic flexure pressing against the diaphragm raises the heart from below and, still more important, these distended organs rise into the dome of the diaphragm behind the heart crowding it against the anterior chest wall and mediastinum. This pressure, exerted over long periods, stretches the diaphragm, and finally, results in atrophy. This permits these disturbed relations to exist permanently, together with a decreased diaphragmatic mobility. Thus, the beneficient pumping action on the abdominal vascular system is partially or, in extreme cases, largely lost. The liver is also more or less deprived of the massage and the squeezing action, incident to diaphragmatic excursion.

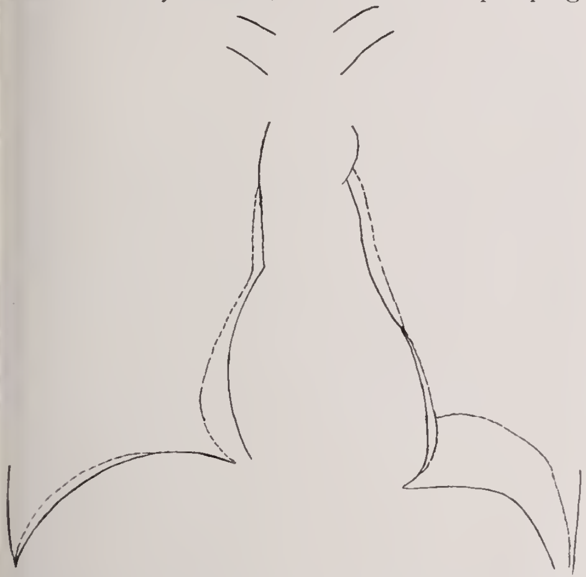

Fig. 3. A composite drawing made from anterio-posterior roentgenograms taken before, and after inflation. The solid line shows the shape and the position of the diaphragm, the heart and the great vessels before inflation. The broken line indicates the shift after inflation.

Changes in the contour of the heart and the relations to the great vessels is easily demonstrated by gastric inflation. The apex is pushed upward and outward causing a more horizontal position. The heart is pushed toward or against the chest wall. During systole it may strike against the chest wall. On account of this the patient becomes conscious of his heart beat with its attendant anxiety. The supracardiac shadow is widened, due to an angulation of the aorta and the other great vessels. While it cannot be demonstrated, angulations and constrictions of the inferior vena cava and the hepatic veins must also occur.

Many of these changes can be demonstrated by ordinary physical diagnosis. The apex is displaced upward and outward. Traube's semilunar space extends upward. There is a dullness of the left apex of the lung, due to atelactasis. There may be systolic murmur. The second aortic and pulmonic sounds are accentuated.

Wayne and Grabeil(4) contend that this symptom complex is not due to cardiac displacement, but due to the circulatory demands of digestion. They show that these changes in the heart position are not as great as those taking place in body movements such as stooping, bending, twisting, etc. After inflating the stomach with a tube, a group of known cases of angina pectoris could tolerate as much exercise as before inflation, but all tolerated less exercise after food. Their critical analysis is interesting, but in patients presenting this symptom complex distention is usually associated with food intake and digestion.

In acute postoperative gastric dilatation, usually associated with paralytic ileus, the mechanical effect of the distended stomach on the heart becomes one of the major problems in managing this condition. The method of continuous siphon drainage(5) and decompression of the stomach, probably accomplishes as much by removing the embarrassment to the heart, as it does in removing toxic bowel products. Not only the heart has a more nearly normal space for action, but the mobility of the diaphragm is, at least, partially restored, with its beneficient effect on the portal circulation. The return of venous blood from the abdomen is thereby facilitated. This is a major factor in eliminating gases and toxic products from the gastro-intestinal tract.

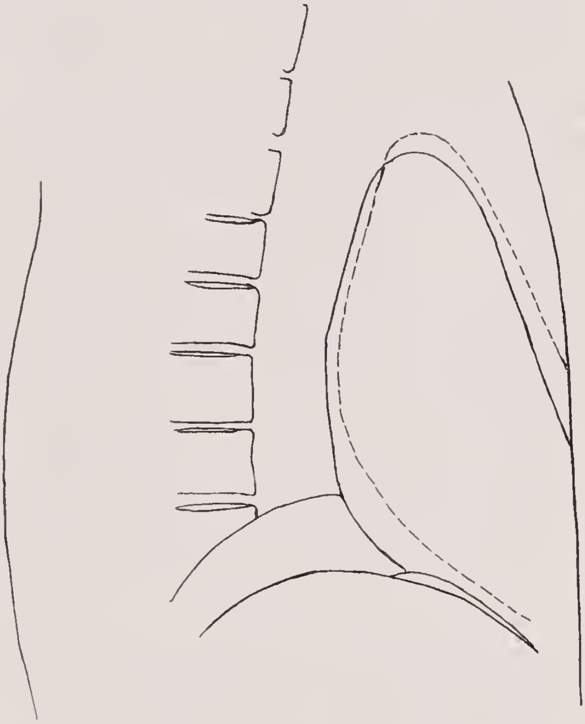

Fig. 4. A composite drawing, made from lateral roentgenograms taken before and after inflation. The changes are indicated as in Fig. 3.

Sprague, in discussing the cause of some postoperative deaths, mentions the respiratory and circulating disturbances, due to the Trendenlenburg position.

Treatment of the gastro-cardiac symptom complex[3] consists: (1) in allaying fears of heart disease. These patients are usually convinced that they have a grave heart disease. (2) Eating habits should be corrected. This condition usually occurs in rapid, large and irregular eaters. These faults should be rectified. (3) Diet: Gas forming, heavy cellulose foods should be avoided. (4) Exercise, such as walking after meals, aids in gas elimination. This is purposely and carefully avoided by these patients, who are apprehensive of a serious cardiac disorder. (5) Weight reduction is desirable in the obese. Many of these patients have a large panniculus adiposus frequently high on the abdomen. (6) Rhoemheld advises a special respiratory technique to establish abdominal breathing. This consists of expanding the abdomen against pressure exerted by the hands on the abdomen. This strengthens the diaphragm and abdominal muscles. The liver is massaged, the venous return from the abdomen is promoted, thereby increasing gas and food absorption and is conducive to bowel motility. Swimming and walking are also beneficial.

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## DISCUSSION

DR. JOSEPH D. McCARTHY, (Omaha): Dr. Niehaus has recalled to our attention a symptom combladder and the adjacent peritoneum and omenthe Effect of Food, Gastric Distention, etc., on Angina plex which as far as differential diagnosis is concerned is at times a real problem. In the majority of instances a careful study of the picture presented by the patient will usually result in a correct diagnosis. There are those cases, however, which seen under emergency conditions, demand immediate diagnosis and specific treatment. Faulty interpretation, under such conditions, may result seriously for the patient inasmuch as the improper treatment, especially if the condition be circulatory, may result in tragedy. I refer especially to those cases diagnosed as "acute indigestion" followed by therapy which frequently calls forth the use of the stomach tube. Such an error may be followed by results which for their seriousness are comparable to those frequently seen as an aftermath of the purged acute appendix. On the other hand we see the patient who has become a confirmed neurotic because of having been told years ago that he had a "weak heart" by some physician who incorrectly interpreted the symptoms of either physiologic or organic gastro-intestinal disease. Such mistakes usually result in curtailed activity with its resultant economic loss. Occasionally we meet the patient presenting symptoms which might be ascribed to any of the conditions mentioned by Dr. Niehaus, and although the most careful study is made is impossible of diagnosis at that time due to the fact that the morbid processes have not as yet given us the tell-tale findings necessary for a diagnosis. Only prolonged observation of such patients will eventually result in the true diagnosis.

I would like to mention a condition, in addition to those already described by Dr. Niehaus, which it has been my privilege to see during the past year—namely, eventration of the diaphragm. When involving the left side of the diaphragm it can result in a displacement of the heart to the right and give rise to symptoms suggesting a circulatory disorder, or the distended rotated stomach and high distended splenic flexure may give rise to physical findings suggesting pneumothorax. Radiographic study, if this condition at least be thought of, is our greatest aid in arriving at a correct diagnosis.

It is my opinion that the carefully taken and studied history is the most important factor in the clinching of a correct diagnosis in many of the afore-mentioned disorders.

Dr. Niehaus has shown us what may result in his study on the gaseous distention of the stomach and is to be congratulated on his graphic presentation.

DR. R. RUSSELL BEST, (Omaha): I think one of the most dramatic conditions we have is acute dilatation of the stomach. There we have proof that dilatation of the stomach with pressure does have some effect on the circulatory system, because if we watch these patients who have a dilatation of the stomach from trauma or operative manipulation, there occurs a rapid increase of the pulse, which is out of proportion to the accidental or operative trauma.

We have watched cases in the last year, and upon introduction of a constant suction apparatus, we found the pulse rate went down. When the tube was removed, and the tone of the stomach did not improve but dilatation recurred, especially at the fundic end of the stomach, the pulse increased in rate. With re-introduction of the tube, we were able to bring down the pulse. I believe this demonstrates what might occur in chronic accumulation of gas either in the stomach or splenic flexure of the colon.

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Husband (to family doctor, on telephone): "My wife has a severe pain in the back of her neck, and complains of a sort of soreness in the pit of her stomach."

Doctor: "She has malarial colic."

Husband: "What shall I do for her?"

(Here central switched on a machinist who was talking to a man about a boiler.)

Machinist (answers on same line): "Say, I think she is covered with scales inside about an inch thick. Let her cool down during the night, and before she fires up in the morning take a hammer and pound her thoroughly all over."

And so the family doctor wonders just why he lost his patient.

# POSTOPERATIVE TREATMENT OF PERITONITIS*

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For the purpose of brevity, and the elimination of some controversy, it will be assumed that we are all agreed, that peritonitis is a regional localization and manifestation of infection, or poison, and in addition a systemic invasion and manifestation. It will be assumed. further, that we are all agreed, that the time lost, before treatment is instituted, plays a very important role in the outcome of the disease. It will be assumed, also, that the physician who first attends the patient has the primary responsibility and that he, together with the surgeon's skill, dexterity, rapidity with efficiency, gentleness and decisiveness, and clinical judgment constitute major elements in the success or failure of the engagement that ensues in the human body, when invaded by the destructive forces incident to peritonitis. It will be assumed, further, that most surgeons are agreed that the anesthetic is an important factor in the surgical treatment of this invasion.

Now having assumed some of the major propositions, on which I am confident we are all in agreement, another assumption will be added with which I am in full agreement, which is, that a complemental jejunostomy should be used. A complemental jejunostomy performs the important function of rapid elimination of toxic intestinal gases and fluids and by this elimination prevents toxic absorption and reduces the exhaustive intraintestinal pressure effect on the intestinal musculature and circulation. The procedure should not be used for any other purpose than to establish a vent for gases and fluids of the intestinal tract. I believe that it is more prudent to attempt to prevent an ileus than to trust that none will occur, and properly done, a jejunosomy is a dependable measure for the prevention and treatment of an ileus. I base this statement on first hand knowledge of 524 jejunostomies.

With this prelude it is my desire to offer, for your criticism, a treatment together with some conclusions which have been reached, through my own clinical experience, in the postoperative treatment of peritonitis.

I believe the first requirement is to reduce the infective and toxic invasion by dilution to a point of non-toxicity. For this I prefer a hypodermoclysis of 1000 cc. normal salt solution, to which is usually added twenty-five grams of glucose, to be given every twelve hours until the tongue is dripping wet. The wet tongue is my one clinical index for the amount of the solution the patient requires. If 1000 cc. a day will keep the tongue wet and dripping wet, it is enough. If it takes more to do it, the patient gets it. And in some cases Normet's solution is added to the normal salt solution. If the patient can take clear water by mouth so much the better, for he must have water one way or the other and lots of it. In some cases I use the intravenous administration of normal salt solution and glucose, but I prefer hypodermoclysis. We have no way of estimating the volume capacity of the circulatory system and it has been my experience that the circulation will take up fluid placed under the skin as rapidly as it can handle it, without embarrassment, and I believe that as a general rule, taking all things into consideration, it is the safer method.

A prime objective is the maintenance of the heart and circulation. During the first phase of this toxic assault morphine sulphate or its narcotic equivalent, I think, is dependable. It acts upon the sensory nervous system, abolishes pain, slows the heart, slows respiration and does not interfere with diuresis before the heart begins to fail. It does, however, lower the blood pressure —at least it has been my experience that it does —and with a rapidly failing heart and falling blood pressure or reduced diuresis I interdict opiates or reduce them to the irreducible minimum.

For the major phase of the engagement some reliable support for the heart in addition to glucose is needed. As a result of my experiments, in search of something to meet the requirements, quindine sulphate was finally selected. This drug reduces the irritability of the heart muscle and decreases the circle of stimulation. Diagrammatically the stimuli of the upper heart follow a circular movement with an open arc of non-stimulation. In toxic stimulation this open arc is decreased, even to the point where the circle is complete, and auricular flutter results. The role of quinidine sulphate is to increase this arc of non-stimulation, thus reducing the irritability of the cardiac muscle fibers. As it usually requires twenty-four hours for quinidine sulphate by rectum to become physiologically active it should be started as soon as at all possible. When I began using quinidine sulphate I thought that it would be contra-indicated in some types of albuminuria. I have found, clinically, by careful checking and using the dosage I have, that it can be used safely without any detrimental effect on the kidneys.

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*Presented before the annual meeting Nebraska State Medical Association, Omaha, May 14-16, 1935.

In the adult case, quinidine sulphate is given by dissolving five grains in an ounce of warm distilled water to which is added two grains of barbitol and this solution is injected into the rectum with an Asepto syringe using a 16 French catheter and gravity every four hours. Barbitol is a solvent for the quinidine sulphate, allays restlessness, promotes sleep, reduces the amount of morphine sulphate materially and clinically helps my patients. This dosage is continued until the pulse rate reaches a point of one hundred. After this point is reached the time between doses is usually twenty-four hours and often it is eliminated entirely.

My experiments with quinidine sulphate lead me to another observation. Clinically it increases the tone of all smooth muscle and counteracts the depressing effect of the toxemia on the intestinal tract. It has been my clinical experience that the quinidine sulphate solution after forty-eight hours will usually produce an expulsion of flatus in sufficient amount to satisfy requirements. Occasionally after the 5th or 6th postoperative day, if the patient's general condition warrants, and there is a reasonable indication for the evacuation of the rectum, I use the following: Quinine Sulphate, grains twenty, Dilute Hydrocloric Acid, ten drops, Glycerin, two ounces and water, two ounces, warmed and injected with an Asepto syringe and 16 French catheter by gravity. There is invariably a marked inflammatory reaction with more or less edema of the ileo-cecal juncture in these cases. And I know of no one thing that can be done to increase this reaction and thereby produce a hydrostatic mechanical obstruction at this point than the introduction of a large amount of fluids into the gastrointestinal tract or the administration of drugs that will increase the fluid contents of the intestines. The usual depressing enemas or purgatives are never permitted in the treatment of my patients.

In addition to these measures, the electric pad is applied over the abdomen four hours on and two hours off, which I believe increases visceral tone and is just as efficient as other forms of surface heat and more comfortable and convenient.

Last to be mentioned, but in my opinion one of the important requisites is an efficient special nurse. She must be able to stand fire, be tactful, vigilant, have endurance, and trained to care for this condition.

Since the plan of treatment as outlined was adopted, I have operated upon and treated a group of 150 private cases of seriously ill patients ranging from 6 to 68 years of age, many in a state of impending dissolution, with diffuse peritonitis, the result of appendicitis. There were six deaths, a mortality rate of 4% which is an approach to success.

The only statistics that have been of any material value to me have been those in which all the elements that entered into the calculations were known by me. I shall not burden you with a long analytical dissertation. It is neither practical nor permissible for me to recite all the elements that entered into these cases. As a matter of fact the proximate cause of death of each of these patients was appendicitis. My job was to keep them alive and restore them to usefulness and I failed to do it. A choice alibi may be of value to soothe wounded egotism but should never be accepted as a substitute for failure. Many years ago a Lincoln physician, who had very little scientific prestige but a large volume of patients, frequently recorded the cause of death as "suppression of the vital forces." And whenever I listen to, or read, a long drawn out postoperative alibi, my respect for the sagacity of this physician is increased. Perfect truth is not attainable. It can be only approached and the nearness of approach depends upon the degree of knowledge and its application.

Now, by the way of application and conclusions. From my experience I have arrived at the following conclusions:

1st. With sufficient knowledge deaths due to peritonitis, the result of appendicitis, are preventable. And one of the duties of the medical profession is to secure this knowledge and disseminate it.

2nd. The disaster of delay in diagnosis and surgical treatment of the exciting cause, which in an overwhelming number of cases is appendicitis, must be recognized and emphasized more forcefully by physicians.

3rd. The time is not far distant when the appendix will be removed in children at a very early age, at a cost of not to exceed $25.00, as a routine preventive measure. And I believe the medical profession should advocate this procedure.

4th. Incompetent surgery is a large factor in these deaths but no method has been devised to solve the problem of this human equation and it will probably remain unsolved for many years.

5th. Incompetent anesthetists and unsafe anesthetics should be eliminated. To accomplish this will require an intensive and courageous educational program on the part of surgeons.

6th. Non-recognition of the fact that there is a rapid concentration of toxic material per cubic centimeter of tissue fluids which raises the kinetic toxicity and relatively lowers the resistance of all tissues and particularly the heart and circulation, which must sustain the assault throughout the disease. is more general than is suspected.

7th. The only practical and logical agent to lessen this toxicity is water and a wet dripping tongue is the best indicator of the amount of water required.

8th. Opiates are of value to allay pain and restlessness, but a careful watch should be kept for a falling blood pressure or decreasing diuresis and if either occurs opiates should be withdrawn or reduced to the irreducible minimum.

9th. The maintenance of the heart is best accomplished by the use of quinidine sulphate, barbitol and glucose. In my opinion camphor, coramine, strychnine, caffeine, digitalis, pituitrin and like drugs do more harm than good, are used indiscriminately and often disastrously.

10th. The maintenance of the muscular and secretory tone of the intestines is necessary and is best accomplished by surface heat, quinidine sulphate, glucose, normal salt solution, and a complemental jejunostomy.

11th. Purgatives and the usual enemas are executioners.

12th. Non-residue foods of high caloric value such as glucose for hypodermoclysis and dextrose solutions guardedly used by mouth are indispensable.

13th. The treatment of these cases without the services of a competent special nurse should not be attempted. An efficient nurse is just as essential as other modern agents and should be viewed as necessary expense in the procedure.

14th. The treatment proposed is simple, efficient and available to any physician almost any place.

It has seemed to me that medical literature and discourses are filled, too often, with difficult procedures, technical equipment and laboratory complexes classified as scientific medicine, and that the more confusing the method the more scientific it is claimed to be.

The term "scientific" is abused and misconstrued very often. Science is defined as "knowledge gained and verified by exact observation and correct thinking." Let no one assume that this is not a gigantic requirement. Scientific knowledge and instruments are utilized in medicine and do give to medicine a scientific coloring, which, combined with culture, clinical experience and knowledge gained by trial and error, constitutes the art of medicine—a modern professional service of unquestionable and immeasurable value.

One hesitates to conclude that any scientific value inheres in the conclusions reached by the experimentation of a single life; but no better compensation for painstaking effort can be had than some justifiable hope that that experimentation may lead to conclusions which ultimately may be regarded as scientifically demonstrated.

## DISCUSSION

DR. J. FREDERICK LANGDON (Omaha): There has been a marked improvement in the treatment of peritonitis during the last two years. The mortality has been materially lowered. Credit for this belongs largely to Wanganstein and Orr. Orr has shown that the continued distension of the intestines is the principal factor in bringing about the blood change that resulted in death. Wanganstein by means of the Levine tube and continuous suction has provided the means to overcome this distension.

Dr. Johnson accomplishes the same thing with his jejunostomy. Personally, I seldom do a jejunostomy anymore as I find that I can accomplish the same thing with the Wanganstein method. The Wanganstein apparatus in my hands not only is easier of application and saves the patient the ordeal of an extra operative procedure but also, I believe, drains the intestine more positively than does jejunostomy.

Dr. Johnson spoke of morphine in these cases. This I believe is important. Morphine, it has been shown, instead of splinting the bowel as was formerly supposed, actually produces mild peristalsis. Morphine should be used throughout the course of the disease.

I am not familiar with the use of quinine in these cases as Dr. Johnson has suggested. I believe it is certainly worthy of further study and investigation.

DR. JOHNSON (closing): I have no quarrel with Dr. Langdon or any one else as to the choice of jejunostomy and the Levine tube. I think perhaps we are very much inclined to stick to something we have tried and found dependable, rather than to try something with which we are not familiar. I have used the Levine tube for keeping the stomach empty. I have seen it used in several cases in which I have been called in consultation and in those cases the patients were dying. For some unaccountable reason there was no suction of intestinal fluid, although it is said it can be accomplished. A jejunostomy saved the lives of these patients. At least we gave it the credit. One of the basic principles for which I have argued is the elimination of toxic gases and fluids of the intestines. It can be done by a jejunostomy and if it can be done as well with a Levine tube there should be no quarrel. What is the difference whether you go to Chicago on the North Western or the Burlington if you reach your objective safely and satisfactorily by either route?

I believe in quinidine sulphate. If you will use it as I have outlined you will be agreeably surprised.

As to the effects of morphine sulphate on the intestinal tract. I maintain, Dr. Orr of Kansas City notwithstanding, that when the blood pressure is falling and diuresis failing you had best lay off of morphine. I got some hard raps before I learned to observe this.

Another basic principle is dilution of toxins. I have no faith in anything but water for this purpose.

# DISEASE OF CHILDHOOD FROM THE STANDPOINT OF A GENERAL PRACTITIONER*

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In attempting a discussion of the disease of childhood from the point of view of a general practitioner, due consideration of the magnitude and scope of such a discussion, as well as its importance, must not be overlooked and cannot be confined to the consideration of disease involving any particular system, but to all afflictions to which childhood is heir.

Hence, it should be recognized at once that, in the time allotted to this paper, a suggestion only in a broad way, can be made as to the position and responsibility the physician assumes in his role as guardian of the destiny of childhood in its relation to disease. This is the stewardship for which he must give account. Into his arms is first thrust this tiny human life endowed with so many potentialities and possibilities. Could there be a greater responsibility?

In order that he should have a clear perspective of the field of his interests and activities, he should first carefully study the lineage from which the child descends; the parentage immediately involved; the circumstance of its prenatal life; the conduct of its birth; the environment of its infancy and the management of its childhood. Remember, no child is ever advised in the selection of its parents nor properly considered in the manner of its conception nor consulted in its intra-uterine life and too often not safeguarded in its birth nor duly nourished in its infancy nor intelligently supervised in its childhood.

If this be true, and too frequently it is — then childhood has emerged from a sphere of great eventualities, questionable potentialities and grave doubt as to its ability to cope with life. This is the price of its evolution and the badge of its civilization.

With these considerations, the general practitioner must carefully inform himself and thus constituted, he may be eligible to qualify as the "family physician"—the shepherd of his flock.

His responsibility is indeed great—the wonder is that so many have proven equal to the task.

Thirty years ago, if the general practitioner had been told that within his lifetime infant mortality from feeding difficulties alone, would be reduced to a minimum in the better communities, he would have been incredulous. If he had been told that the major problem of pediatrics, would be how to get children to eat and what is best for them to eat, scientifically determined, he would have been more incredulous still. Yet, both of these conditions have been fully met as the result of the indefatigable work, painstaking, scientific investigations and self-sacrificing endeavor of our pediatrists. To them the general practitioner owes much indeed. From them he has learned much, while he himself has contributed much of inestimable value towards solving the problems of child-health and the building of a virile human race physically and mentally capable of perpetuating the traditions of our common country.

Careful thought discloses that, in consideration of the subject, "Disease of Childhood"—all the factors entering into the child's life must be studiously investigated, both in health and in illness. The range of these factors extends not only through the child's first years but on into adolescense and adult life and beyond this, into future generations. The problem is not exclusively a medical one but is the responsibility as well, of the parent, educator, health officer or other administrator, all under the wise and intelligent guidance of the medical profession.

Child health and disease have a number of common factors and these are always the same wherever found in city or country—in fortunate or unfortunate environments.

"They are all influenced by heredity and prenatal conditions; they all vary with the changes that come with advancing age; they are complicated by the great question of nutrition; they involve mental as well as physical well-being; they change with our ability to control the incidence of disease."

Let it be understood also that the diseases of childhood do not, however, all originate, intrinsically, after birth and none are without the influence of racial or family heritage. "They may depend upon germ plasma defect, accident or disease of the prenatal period and a few upon evident or masked injuries received at birth." Once acquired disease stigmata may go on accumulating through generations a force capable of exerting great influence on the health and efficiency of those who come after us.

As general practitioners clothed with the authority vested in us by education, training, study and experience; accepting the responsibility of accoucheur, family physician—the child's "first specialist," our obligation is tantamount to a command and our relation to childhood greater than any who minister to the frailties of human life. Our chance in professional life was the responsibility of our antecedents in the profession, remote and immediate, and we in turn, therefore, are laying the foundation, good or bad, for those who are to follow.

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The broad domain of the welfare of childhood is populated with too many fads, fantasies and the ego of "old maids" delegated by acts of legislatures or clothed with the edicts of organizations in the so-called "Child Welfare Movements" directing the policies that shall govern and regulate the thought and practice of the medical profession. They would be the masters and we, the gally slaves plying the oars and steering the frail craft of child life into the harbor of health and happiness.

The "misunderstood" child, the crippled, the syphilitic, the tubercular, the neuropathic and imbecilic child are still with us, pleading for our solution of their misfortunes and may I say that this pleading has not been to ears that are deaf, nor has it been in vain.

The "misunderstood" child as analyzed by Doctor E. Flusser of Bohemia, is one whose environment does not provide what it requires for its welfare. "This means, in the first place, a proper nutrition and attendance, but in addition an indefinite something, rooted in sentiment and human appeal." In order that children may thrive normally, develop physically and establish a stable, well ordered nervous system, proper nutrition, rest, care and peace are of the utmost importance. Disturbance of the peace and tranquility of young children is one of the most baneful influences in the cause of neuropathy. Neuropathy is a conflict and this in turn, may often be a sole cause of abnormal behavior in childhood. Conflict which produces a neuropathic child may not be situated in the child itself, but in its environment. This author maintains that there is no neuropathic child without conflict in its environment. Therefore, it is our duty, in this age of rapid transit, radio and screen to warn parents of the dangerous influences these agencies may produce in the child by their impressive excitement, disturbing their peace and proper rest to produce a neuropath—not to speak of the moral turpitude and criminal tendencies they may engender in later life.

Consider what has been accomplished for the crippled child and the congenitally or acquired malformed. The general practitioner now, through his knowledge acquired from the pediatrician, the surgeon, and his own experience, recognizes early these grave afflictions and sees to it that the child receives proper treatment at the proper time. What wonderful results have been attained!

The syphilitic, the tubercular and the feeble minded child still show up to shame—not the physician, but society into which it is born and which refuses for either sentimental or insane reasons to accept his mandate to eradicate all these maladies by refusing marital contracts or sterilization to those who would become the parents of such children. The family physician through his influence, tact and confidence may and should continue to educate the laity to accept these preventive measures in our effort to curb these destructive morbid processes transmitted to helpless children by direct inheritance or associated contact.

Recalling my experiences in a practice of many years, I am fully convinced of many mistakes in diagnosis and in placing proper stress on symptoms and their far reaching influence in the common diseases of childhood and I am also convinced that now, the average general practitioner who comes in daily contact with the common everyday disorders of childhood, is in a position to accomplish better results in their understanding and treatment of such disorders. He should give more careful attention to them and not feel dependent upon our more scientifically inclined confreres for their solution. Is it not likely that in his clinical and hospital work, the clinician, lecturer or writer is very apt to lay stress upon those conditions which interest him most as a clinician; sometimes because of their difficulties in diagnosis; sometimes because of recently reported advances which tend toward newer lines of thought and treatment and sometimes of their apparently minor importance? As an illustration—constipation, too often considered a minor malady in infancy and early childhood, but which often develops into an habitual and obstinate constipation, not only in the child, but in the adult as well with often dire results. "Too little attention is paid to this disorder from the standpoint of a real cure. Temporary relief is given and the case dismissed without sufficiently outlining the management so that future recurrences may be controlled."

So it is with many of the other so-called common disorders of childhood which, if neglected or improperly diagnosed and treated, may lead to unsuspected complications with their inevitable results. In his care of childhood, nothing should be too commonplace to receive his most careful thought and consideration. Especially is this true in the cardiac disorders in childhood. I know of nothing so sadly neglected, by the average family physician, than the disorders of the heart in childhood. Failure to recognize infections tending to produce heart disease and the immediate symptoms in the heart, too carelessly regarded as temporary, which will most certainly result in organic disease if such cases are not properly regarded and managed in their incipiency and lead to increasing incidence of this disease and to the handicapping and shortening of a useful adult life.

Early and proper diagnosis, therefore, of disease in childhood is, of course, most important, and the general practitioner should and must be prepared, if not to make a definite diagnosis, to at least suspect its seriousness and ask for help. Delays in diagnosis are too frequently dangerous to the patient and disasterous to the physician.

Child hygiene, child guidance and child behavior are important considerations to which we as general practitioners give too little attention. Periodical medical examinations of school children, intelligence tests and a careful search for all defects and possible deflections from the normal must constitute a part of our duty in the conservation of child health.

Education of the parents and the laity in general, as to the importance and necessity of early immunization against all contagious and infectious diseases by the use of all proven and accepted methods now known to modern medicine, is one of the fundamental duties which the general practitioner must assume.

We, as physicians, should use our knowledge and influence in a concerted effort to secure the enactment of legislation for compulsory immunization against all such diseases, of all children before entering our public schools. None should be excused on the ground of his personal liberty, nor the sanctity of his creed.

The relationship between the family physician and the pediatrician should be one of cordiality, mutual cooperation and helpfulness. We should be so well informed that we do not hesitate to give an opinion and so compromising that our consultations may not be deferred too late to give our children the best that is in store for them.

## DISCUSSION

DR. FLOYD CLARKE, (Omaha): I hate to get up here again, to be frank with you, but I cannot let a paper like this go by without at least commending Dr. Buchanan for his excellent, practical talk. The program committee thought the general practitioner, as pediatricians are, would be especially interested in Dr. Buchanan's, or in any general practitioner's, efforts. The desire was to give impetus to pediatrics in the country, and in the city as well. I think Dr. Buchanan has exemplified this very well and has set us to thinking as to how much there is in pediatric work.

I wonder if we all study our pediatric cases as we should when they come in to us Do we always take off the clothing and examine the baby and pay enough attention to the nutritional diseases of childhood? Pediatrics is becoming more and more a matter of prevention. We are now immunizing against diphtheria and whooping cough. Before long we will be immunizing against infantile paralysis. We must earn a living—we general practitioners.

Do we pay enough attention to the nutrition of our babies? In a broad way we should view them on this basis: "Is that baby gaining? Is he happy? Is he developing rickets? Have we done everything we should in immunizing the youngster against the various diseases?" We have been taught to treat disease, but the general practitioners must do something else besides treating disease. We must educate ourselves to take care of the nutrition of that child. By this we increase our office practice and our clientele. Dr Buchanan has helped to teach you this.

I hope we will have further discussion on this paper.

DR. J. HARRY MURPHY, (Omaha): I think Dr. Buchanan has brought up some points which you general practitioners, having had the opportunity to follow these little ones through from the time they start until their adolescence, will find very well worth while.

Dr. Buchanan mentioned some of the more recent developments. For instance, it is quite remarkable there should be a problem to get a child to eat; that there are neuropaths developing in childhood. We know more about feeding, and still it is more difficult to give the food to the child. The child develops antagonisms. Unless those are shaped or checkmated, he goes on in the belief he is getting away with something. Very likely he is. But as he comes to the point where he must meet his fellows in school or in the business world, he will be due for many hard bumps, because he has no mother there to back him up.

Dr. Buchanan brought these things out nicely. They are certainly pertinent to present-day problems. We know more how to prevent disease and what to give children to eat; yet there are new problems which have arisen.

DR. A. A. CONRAD, (Crete): I did not hear the first part of this paper. Being a country doctor, I am qualified to talk. The last part of this paper on heart disease was interesting to me, because of the fact it has taken such a prominent place in the death rate in the United States. I think probably one of the big difficulties in its treatment in children is to get the parents to keep the child in bed long enough to let it subside. Treating the child is not as hard a job as to handle the parents after the child has been in bed four or five months, and doesn't seem to be sick. It is an educational proposition with the parents. Unless we can teach the parents we must do these things for the child, we cannot get far. Getting their cooperation is a big job. After one child has been taken care of and came through in good shape, the next isn't so hard to handle.

The parents are not home long enough to teach the children much of anything. When they are, they won't submit themselves to the amount of discipline it takes to make the child do what it should. We see a child with a sore throat. We want to treat it. The child screams, and the mother says, "Can't you do it some other way?" There is one time to make the kid understand there is one man who will make him do what he wants him to do. The mother who sits and frets because the child doesn't eat puts some nonsensical ideas into that child's head.

It is too late for some of us to start an educational program; but the younger men can get the idea into these people who are going to be parents, and make them understand who really is the boss in that house. Sometimes you are not very popular taking that kind of an attitude until you have gained your point. Then they will stick with you until the last dog is hung. It seems to be the province of the doctor, whether he is a pediatrician or general practitioner, to make people do what is best for them. Perhaps some of us do not have quite enough scrap.

DR. LUCIEN STARK, (Norfolk): Personally, I think this paper should have been read three generations ago. We witnessed the defeat of the sterilization bill in Nebraska. When Dr. Buchanan spoke about prevention by sterilization of mental defectives, I thought if we had had this paper three generations ago, probably we would not have had that same group down there this winter.

DR. BUCHANAN, (closing): The time is too short to go into details in a paper which covers so much ground. However, we think it proper to educate the people on these common disorders which result, so frequently, in so many serious things. For instance, take the throat infections. Children are allowed to run around and even go to school with tonsillitis, to my mind a very serious, common infection—instead of remaining in bed long enough to build them back to a normal condition, which might prevent serious cardiac troubles we see frequently in children.

I thank the gentlemen for this discussion.

# ANOREXIA IN CHILDREN*

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A physician said to his son, also a physician, "Son, anorexia put you through medical college." The last paper I heard on anorexia, received the most bitter criticisms I have ever heard in the pediatric section of the A. M. A. I am reliably informed, a writer of a book on this subject, had very great difficulty in his own family with anorexia. Doctor Elmer Johnson, of New York, in a recent number of the *New Jersey Medical Journal*, states that three-fourths of the new patients coming to the office of a pediatrist, come with the complaint of anorexia, and that this is the most common diagnosis in the pediatric department in the dispensaries. Anorexia may be only apparent. The child may be taking a diet containing plenty of calories, but because he is taking concentrated diet, the mother thinks he may not be eating enough.

Case 1. Baby F. M., is an illustration of this. At the age of 16 months he weighed 31 pounds. (Normal being about 23 pounds). The mother states that the child has a poor appetite. He has a good color, is active, acts well, and looks well. He ate bacon, cereals with liberal additions of sugar and cream, and vegetables belonging to the class which have plenty of calories. In other words, he was taking a concentrated diet and did not need large quantities of food to meet his caloric requirements. A statement to the mother to this effect satisfied her, and the child proceeded to develop in a normal manner.

Actual anorexia may be present as the result of illness, either acute or chronic.

Case 2. Baby M. D., age 6 months, birth weight 8 pounds, 9 ounces, breast fed four months, when his weight was 14 pounds, 8 ounces. He was then placed on a bottle and fed various foods, such as Dryco, cow's milk, lactic acid milk, etc. He began to vomit, and lost weight as the result of improper feeding. He was constipated because of inadequate food. At 6 months of age he was brought to the Methodist hospital weighing 11 pounds, 13½ ounces. He had a temperature of 104° which later varied from that to normal with periods of fever lasting a few days, and at intervals of a few days, periods, without fever. This was repeated several times. He had no cough. He breathed rapidly. His parents were able to get him to take but little food and much of that taken, was vomited. To remedy the constipation he had been given from four to five teaspoons of mineral oil, daily, over a considerable period of time. He resisted the oil, and would cough, spit, and choke when attempts were made to give it. He was in a poor state of nutrition. The left chest was definitely limited in motion, resonance was much impaired throughout, with rather feeble breath tones over the entire lung. The x-ray confirmed a diagnosis of lipoid pneumonia. The boy was fed with a tube over a period of several weeks. Finally we were able to give the food by holding a glass or cup to his mouth until he would swallow. He was in the hospital over three months and went home having gained about six pounds. A report a few days ago stated he was doing well and weighed 20 pounds and 7 ounces.

Apparently trivial causes will influence the appetite. Such a case is illustrated by the following:

Case 3. Baby W. B., six weeks premature, birth weight 4 pounds, 3 ounces, was seen at the age of 7 months when he weighed 13 pounds and 7 ounces. He was brought to the office with the complaint that he would not eat. Various formulae had been tried and the parents and grandparents had made faithful and repeated efforts to get him to take his food. He looked pale. The hemoglobin was 61%, red blood cells were 4,470,000, white blood cells 18,000, polys. 24%, lymphs. 73%, monos. 2%, and eos. 1%. An attempt was made to feed him at home, and foods of a concentrated character of one sort and another were tried. In a period of over two months he gained less than one pound. He was taken to the hospital, fed with a tube, and within a period of two months gained three and one-half pounds. It seemed impossible to make him gain in any other way than by tube feeding. In this patient a combination of prematurity, anemia, and attempts at force feeding, were apparently the cause of an anorexia of marked character.

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The third and largest group is that in which there is an actual anorexia, no illness, acute or chronic, and no organic basis for the condition. This condition has come about partly through mistaken efforts of the profession to educate the laity, partly through mistaken efforts on the part of the laity to educate the laity, and mistaken ideas on the part of the laity as to what constitutes good nutrition in a child. Attempts to standardize the individual as to height and weight have been a source of much unhappiness both to the parent and child. Strenuous efforts to standardize the intake of food both as to quality and quantity are commonly encountered. Too much attention to calories in an effort to make the child conform to available standards has resulted in failure of many parents to make the most of their child from the standpoint of nutrition. One mother, in the writer's experience, was daily figuring the number of calories in terms of fats, carbohydrates, and proteins with a corresponding detail of management in other particulars. Needless to say the child was a very poor specimen. Mothers bring their children to the doctor saying, repeated reports from the school show the child is one or two pounds under weight. But little attention is paid to the race or the family characteristics as to weight and height. In the animal world no system of feeding can make a draft horse out of a race horse, nor convert a fox terrier into a great dane. Neither is it reasonable to expect, by any system of feeding, to change the stature of the Italian, French or Hebrew into that of the Norwegian or Scotch. Attempts to standardize the individual as to his physical characteristics are as hopeless as to expect to make a Sherlock Holmes, a Milton, or a Lincoln, out of one decidedly limited in his mental qualifications, and yet mothers are again and again unhappy in their ability to make their children eat and gain in weight as do some others which they know, or, as they are told, they should. Popular magazines discuss learnedly about vitamines, amino acids, acidosis, alkalosis, acid and basic producing foods, to the distraction of the mother who is honestly trying to give her off-spring the best she is able, but is at a loss to know what it is all about. She feels that she has miserably failed unless she is familiar with the 21 amino acids and can discourse at length concerning the peculiar virtues of cystine, lycine, glycine, tryptophane, etc. Her great disappointment, however, lies in the fact that her child does not eat according to schedule, nor has gained in weight according to standards. Advertisers by radio, newspapers and magazines proclaim the virtues of their special products which are offered to the public at a price not commensurate with their value, nor does experience substantiate their claims.

We should not forget the importance of chronic infections such as diseased tonsils, pyelitis, sinus infections, tuberculosis, and lues, etc., nor should we fail to remember the effect of late hours, insufficient rest, over-stimulation at school, too many movies, music lessons, speaking lessons, and other activities outside of school life which fatigue the child and leave him but little time or choice to follow his own inclinations.

Playing with older children, where the pace is too swift for the younger, as well as poorly cooked and badly served food, enters also into the problem of anorexia in the older child. Nor should physical defects, for instance, disturbance of internal secretions, birth injuries, congenital heart, poor eye-sight, which may be undiscovered for a long time, be neglected. Bad habits which are the result of an inherited nervous capital, that handicaps him in competition with those more fortunate, may form the basis for unsatisfactory eating habits. When he fails in school he is criticised by his teachers, berated by his parents, and jeered by his classmates. The proportion of children with anorexia, which has a physical basis, must be less than those who have anorexia, like greatness, thrust upon them. The propaganda put out under the slogan "a quart of milk every day for every child" has been responsible for many cases of constipation and resulting anorexia. He is filled up with a food of low caloric value, and robbed of minerals, to make soap stools. He feels comfortable, and sees no reason why he should eat a variety of foods when he is satisfied with what he has. Some one said, "the child may eat but must not be forced to eat." The natural appetite is, in the last analysis, the best governor of the quantity of food and in many instances of the quality as well.

A low fat and a high protein diet may be of value in inducing hunger pains. Steffansen states that when he and his associates were living on an almost pure protein diet that though they ate until they were uncomfortable because overfilled, they were still hungry. In the management of this condition we should recognize anorexia that comes with acute or chronic illness, and respect it. A failure to do so or an attempt to force the usual food during an illness may initiate the train of circumstances which result in chronic loss of appetite. We should, in the management of anorexia, consider the physical, the mental, and the environmental factors. Physical handicaps insofar as possible should be removed, conditions necessary to a right mental attitude towards food should be furnished, and a favorable environment with reference to the amount, and manner of serving food should be provided. Particular attention should be given to the cooking. The temperature, consistency, sweetness, appearance, and attractiveness of the food should all be given attention. Feeding should not be forced. Tears on the part of the mother, pleadings. spanking, or other forms of punishment, singing, and dancing on the part of other members of the family, counting, a bite for grandpa, and one for father (all of these things are done and many more) do not solve the problem. By these means the young tyrant is only confirmed in his opinion that he is master of all he surveys, and uses all his powers in the attainment of his ends, namely to be the center of attraction. If, by chance, or intention he vomits a meal, he is immediately impressed with the consternation he has aroused, and proceeds to exercise his domination of the family to an increased degree. Attention is now showered upon him, and he comes to appreciate, and enjoy his importance in a measure to which he has not heretofore been accustomed. In some cases negativism develops to such a degree that practically everything is objected to by his royal highness.

Aldrich mentions one such case: When the doctor entered the house, the mother was dragging her young hopeful down the stairway, and he was yelling that he would not see the doctor. Aldrich replied, "You can't see the doctor. you can't have so much milk or so much to eat," while he roared, "he would see the doctor, and he would have what he wanted to eat and drink." In two days he was cleaning his plate, and asking for more food. A child over one year of age need not have definite amounts prescribed for each meal nor is it necessary that a younger one always take a certain amount. Let him take it, don't make him take it.

Proper intervals between meals should be directed, usually five hours in children over one year. The child should not be allowed to "play" with his meal; after he has food before him for a reasonable time, it should be taken away and nothing given until the next meal. Generally the quantity of milk should be reduced or it should be temporarily eliminated from the diet.

In some instances nothing can be accomplished without removing the child from his environment and placing him in different surroundings. So long, however, as mothers are taught to have an abiding confidence in standards of weight and height, calories, foods of certain quantity and quality, and they attempt to enforce these requirements without regard to rhyme or reason or consideration of the appetite of the child, anorexia will continue to plague the doctor, harass the mother, and spoil the child. More common sense. which is the art in medicine, and less so-called "science" is needed.

## DISCUSSION

DR. FLOYD CLARKE (Omaha): I have been sitting here thinking. I have been in practice longer than I like to admit. I do not believe that twenty years ago I ever saw a case of anorexia. I do not know whether some of you older fellows ever saw one twenty years ago. Anorexia is a product of our new life—not of the "New Deal," but of the new life; also of the fact we are having fewer children. One child seems to be sufficient for the average family—at the most, two. Another factor that seems to assist in the cause of anorexia in children usually dates back farther than the time the youngster begins to complain of these symptoms. It would seem quite probable this cause dates back in early infancy when we are first feeding these tiny babies. I am wondering whether the two or three-hour interval of feeding is not a direct cause of the lack of the child's appetite.

We know food does not pass immediately out of the child's stomach. It takes three and one-half or possibly four hours before any food passes. If we start on a three-hour schedule, I am wondering if we do not in this way fail to develop the normal appetite for food. I have not seen as many cases since the depression. They do not think so much about it, probably because of lack of funds.

This was an extremely practical paper, and I am glad to add my little mite.

DR. HAMILTON (closing): It happens so many times with good things that they lead to things not so good. I think our welfare workers and other agencies have accomplished much, but the fact the mothers are trying to make their children conform to the standards laid down by these workers has been productive of much of this anorexia. We will continue to have anorexia until we all have more sensible ideas about nutrition, and not try to make every child conform to a certain standard, which is impossible.

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## OBSTINATE PATIENT

Family Doctor: "Your husband's not so well today, Mrs. Maloney. Is he sticking to the simple diet I prescribed?"

"He is not, sorr," came the reply. "He says he'll not be after starvin' himself to death just for the sake of livin' a few years longer."

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Dr. Cutter: "So you operated on old Richman just in the nick of time?"

Dr. Slicer. "Yes, in another 24 hours he would have recovered."—Pathfinder.

# REFINEMENTS IN TEAR SAC SURGERY*

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Diseases of the lacrymal apparatus have been treated since the human race acquired knowledge concerning it. The earliest reference to the subject is to be found in the Codes of Hammurabi, King of Babylonia (2250 B. C.)(1). The method of treating "an abscess in the corner of the eye" consisted simply in the use of the knife. From Celsus (25 B. C.-50 A. D.) we learn that the Romans recommended excision of the entire diseased tissue down to the bone, after which the bone was thoroughly cauterized with a hot iron "for the purpose of causing a thick sequestrum to fall away." Archigenes, who lived in Rome (48 A. D.-117 A. D.) was more conservative. He recommended the application of a liquid caustic after an incision was made into the diseased tissue. After this he drilled several holes close together, through the bone into the nose. It is possible that this communication was made with the nasal cavity chiefly for the purpose of effecting drainage for the exudate from the wound. A century later Galen appeared (131-210 A. D.). He knew that a canal led from the eye into the nose; he also knew that if colored substances were placed in the eye, they would appear in the saliva, or could be blown out through the nose. Galen recommended the hot iron and the chemical cautery.

Paulus of Aegina, who lived in the 7th century, just before the destruction of the great Alexandrian library, wrote his "Compendium of the Healing Art." He gave a summary of the ophthalmic learning of antiquity, but we find no further advance made in lacrimal medicine and surgery.

The honor for the first description of the anatomy of the lacrymal appartus belongs to Carcanus of Milan(2), a pupil of Fallopius. In 1574 he gave the true position of the lacrymal gland, described the canaliculi and the nasolacrymal duct, and at the same time was able to show the exact route taken by the tears. One would naturally suppose that these anatomical discoveries resulted in corresponding surgical advances, but such was not the case. It was only in the 18th century that a decided improvement was made. This was due, in part, to the anatomical descriptions by Morgagni in 1706, and to the discoveries made by George Stahl, whose little book, "Program de Fistula Lacrimale" (1702), was the first work of importance. He stated correctly for the first time that the so-called "lacrimal fistula" was not an affection of the lacrymal caruncle, but was due to a diseased canaliculus, lacrymal sac or nasolacrymal canal, resulting in stenosis, complete or partial of one or another of these passages. In 1713 Dominique Anel, temporarily put an end to the destruction of the tear sac by caustics and the hot iron. His procedure, the most important ever devised, consisted in the introduction of a sound into the tear passages. By means of a syringe, solutions were injected into the tear sac, and whenever possible, down into the nose. Anel had many followers but he also had many adversaries. It was discovered that only a small number of patients treated this way were cured. Jean Louis Petit in 1734 attempted to restore the normal function by making an external incision into the diseased sac. Drainage was established by the introduction of sounds into the nasal duct through this external incision. In 1833 Dupuytren left a silver drainage tube in the canal after exposing the sac. These procedures were more recently revised by Dean(3).

The second half of the 19th century experienced an improvement in Anel's method. Bowman endeavored to obtain permanent success by passing probes of gradually increasing thickness. Slitting of the canaliculus, a preparatory measure to facilitate probing was then and still is now by many a routine procedure. There is nothing new that can be said on systematic probing. One either obtains results very quickly, even after one or two manipulations, or not at all. It is the procedure of choice in congenital obstruction of the nasal duct. Slitting of the canaliculus is indicated in a mild ectropion of the lower lid, or in those congenital anomalies where the punctum does not approximate the globe. One cannot for this reason avoid this incision altogether but in the cases where it is indicated, it should never be made more than 2 millimeters long, and one must direct the knife as if desiring to cut into the sclera.

Celsus practiced removal of the tear sac, but he was not aware of the fact. In the beginning of the 18th century, extirpation was performed intentionally for the first time by Woolhouse, and in 1724 by Platner. Both of these surgeons also made a false passage into the nose and perhaps for that reason they had few followers. An unsuccessful attempt to revive the operation was made by Rossa in 1830 and Berlin reintroduced the operation in 1868. Because some tearing remained after this operation, de Wecker, twenty years later, recommended also the removal of the palpebral gland.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

Removal of the tear sac as performed today is a satisfactory procedure from a surgical standpoint. It does one thing—it cures discharge of pus. The majority of patients who have their tear sac removed suffer from tearing the rest of their lives. If this operation were as successful as some ophthalmologists insist, there would be no occasion for so much work being spent in perfecting better operations. Extirpation of the tear sac is indicated today only in conditions where reconstructive operations are contraindicated, for instance in trachoma, where we find cicatricial obstructions of the canaliculi and of the sac, in tuberculous processes of the tear passages and in malignancies of this region. Intraocular operations, when postponed because of dacryocystitis, should be preceded by an extirpation, unless it is possible to allow a few weeks to intervene between the two operations. The reason for this is clear. In ulcus serpens or other purulent infections of the cornea in which there is constant reinfection from the sac extirpation is desirable and in most cases imperative.

It is remarkable that in our day, there are a few who adhere to a method, which is one of the very oldest in the history of ophthalmic medicine and surgery. I am referring to the use of cauterizing agents to destroy the sac. (Chromic acid, trichloracetic acid.) The use of these cauterizing agents does not allow proper inspection of the tissues surrounding the sac and this is extremely important, when we are dealing with associated bone pathology.

The result which is desired in the treatment of dacryostenosis is the restoration of normal function. Nature intended that the tears should run down into the nose. Conservation of the lacrymal sac with trepanation of the lacrymal bone to reestablish this drainage was attempted in 1769 by Percivall Pott⁽⁴⁾ in England. Of this subject he writes, "The extreme thinness of the lacrymal bone renders the passage of an instrument very easy and if the breach which is made be of any tolerable size, I am inclined to think that it never is filled up again by bone but that when it is closed it is by a membrane, and therefore it is the surgeon's business to make a pretty large opening into the bone and to prevent its being closed again by rendering the edges of the membrane on each side of it callous." In 1898 (130 years later), Theobald writes that "this procedure is one which has for us only an historical interest and it is never practiced at the present day."

In 1904, Toti⁽⁵⁾ described his classic Dacryocystorhinostomy. With his operation he established a permanent communication between the tear sac and the nose, and it is perhaps the first definite operative plan to re-establish physiologic drainage in cases of dacryostenosis.

As the years went by one began to study the causes of the failure of this operation. It was found for instance, that the frontal process of the maxilla consisted of rather dense bone making perforation difficult. Therefore, an opening was made through the thin nasal bone, containing air cells. It was also found that the margins of the mucous membrane forming the window in the sac did not fit the margins in the nasal mucous membrane, and granulation tissue formed which proliferated and closed the opening.

On the basis of these observations, Kuhnt⁽⁶⁾ in 1914 and Ohm⁽⁶⁾ in 1920, attempted to prevent the closing of this communication by means of sutures. With especially constructed needles, Ohm united the mucous membrane of the nose with the mucous membrane of the tear sac. One year later Dupuy-Dutemps and Bourguet⁽⁷⁾ published their favorable results with their modification of the Toti operation. Instead of 60% of successful cases which Toti originally announced, Dupuy-Dutemps reported 96% complete cures in over 150 cases. However, it was frankly stated that there was difficulty in applying the sutures. Much time was required, the operation lasting over an hour. Failures were thus due to technical difficulties. Naturally not all tear sacs were suitable for this operation. Stitches cut through, and tissues were easily torn. Even after a successful operation there was still a possibility that pus would collect in a blind pocket in the lower segment of the sac.

One also learned if sutures were not used that only the most extensive resection of the bony parts in question could guarantee permanency of the communication. Mosher⁽⁸⁾ in his combined intranasal and external operation uncovers the unciform fossa, removes the anterior end of the middle turbinate and breaks down all of the anterior ethmoidal cells. After this operation the sac no longer exists as a sac. Its external wall forms part of the nasal mucosa and the canaliculi discharge directly into the middle meatus of the nose. In this position they are subject to the diseased conditions common to the nasal mucosa. This possibility must be borne in mind. I feel certain that an operation, demanding such an extensive resection of the anterior ethmoidal cells should be reserved for those cases where there is an associated ethmoidal pathology. Benedict(9) in 1919 stated: "We have been slow to recognize the fact that secondary disease of the lacrimal sac may follow disease of the accessory sinuses." Elschnig(10) pointed out the fact that in these cases we were dealing with a dacryopericystitis without purulent secretion from the sac in the early stage. However, as the disease progressed an erosion of the sac wall could occur giving rise to an acute phlegmonous dacryocystitis. Peters(11) called attention to the fact that there was an implication of the nasal accessory sinuses in more than one-half of his tear sac cases associated with fistula formation, following an acute phlegmonous process. Uncomplicated cases, however, did not show ethmoidal pathology. It is possible, too, that dacryocystitis may give rise to bony erosion and pressure necrosis in exceptional cases. More often I believe the infection in the air cells is due to trauma produced by probing.

A few years after Toti announced his external operation, the first reports were published on the endonasal operation of Polyak and West(12). This approach was first used by Caldwell(13) in 1893. With West's method the operation was no longer in the field of ophthalmology. Tear sac surgery now belonged to the rhinologist, but this is not a real objection if the rhinologist can do it better. I feel that anyone who attempts this type of operation will sooner or later get into trouble by infecting the orbit.

In 1904 Cirincione(14), in Italy, performed an operation which received little attention. He isolated the tear sac, and, after cutting the sac transversely as far down in the bony canal as possible, he bored an opening through the nasal process of the superior maxilla and made sure of its freedom of communication with the nose. Through the bony canal thus constructed, he pushed the lower portion of the sac. In this way he was able to form and retain a drainage route for the lacrymal apparatus. In 1920 Burch(15) of St. Paul, Minnesota, described an operation along similar lines. In his operation he utilized the nasolacrymal duct. In 1921 McMillan(16) of Montreal, transplanted the lower end of the lacrymal sac into the nose through an opening made in the lacrymal bone. The orifice made was beneath the middle turbinate. He again reported on this operation in 1932(17). Operations for the purpose of transplanting the entire lacrymal sac were also published by Fazakas(18) of Hungary in 1924, by De Lieto Vollaro(19) of Milan in 1929, and by Stock(20) in Tuebingen, Germany, in 1934.

During the past year I have performed transplantation of the tear sac in eight cases. I realize that this number is small, but it will serve as a preliminary report. The results with this operation have been so uniformly successful as to warrant its continuation. All of the cases were carefully selected. Nearly all of them are residing in Omaha. Conservative treatment with probes was attempted in all cases prior to transplantation. The degree of obstruction encountered, the state of the sac itself and the presence of nasal pathology was carefully considered. In all of these eight cases the lumen of the sac was large, the walls thick and the obstruction low down. The desirability of preserving the canaliculi intact, especially the lower, was borne in mind, because of the need of the natural capillarity and suction mechanism at the proximal end. Cases which showed a stenosis of the lower canaliculus were rejected. The bony floor of the fossa was carefully inspected at the time of the operation to rule out existing pathology. The anatomic relations of the passages to the adjacent nasal structures were considered in determining the choice of routes between the lacrymal fossa and the nasal fossa.

Before proceding to describe this operation in detail, the more important anatomic features concerned should be briefly reviewed. The lacrymal fossa is about 14 millimeters in height and 6-7 millimeters across. It is divided vertically by a line corresponding to the junction of the frontal process of the maxilla with the anterior edge of the lacrymal bone and each of the two bones takes an approximately equal part in its formation. However, there are many variations. (Whitnall(21), Thorsch(22) and Fazakas(23). The nasal process of the maxilla, forming the anterior half of the fossa, is thick and strong, and becomes even thicker toward the anterior lacrymal crest, which curves downward and outward into the lower edge of the orbit, overlapping the lower end of the fossa in front. The lacrymal bone forming the posterior half of the fossa is extremely thin and it thickens slightly toward the posterior lacrymal crest. The upper half of the fossa and the lacrymal bone is related to the ethmoidal cells. In general the line of the posterior crest may be taken as the posterior limit of direct relationship to the nasal cavity. Within the nose, the anterior inferior end of the middle turbinate overlies the area of the fossa. While all these features vary in different subjects, they show that the portion of the fossa directly related to the nose is limited to its lower half, behind the anterior lacrymal crest, an area measuring about 6 to 8 millimeters in diameter. A satisfactory trepanation of the bone in order to gain free access to the nose must therefore extend downward and forward over the lower portion of the ascending process of the maxilla. The lower half of this bone is dense and contains no air cells.

The nasolacrymal canal is larger in the male than in the female, which accounts for the more frequent occurrence of dacryostenosis in the female. Santos Fernandez(24) calls attention to the greater diameter, directness and shorter course of the lacrymal passages in the negro and to these anatomic peculiarities he ascribes the comparative freedom from lacrymal disease exhibited by the colored race.

## THE TECHNIQUE OF THE OPERATION FOR THE TRANSPLANTATION OF THE TEAR SAC

One hour before operation a hypodermic injection of morphine and scopolamin is given and the operation is carried out under local anesthesia. A line is taken between the infraorbital foramen and the inner canthus and 2 cc. of 2% procaine hydrochloride with adrenalin is injected at about the junction of the lower third of this line. This catches the branches of the infraorbital nerve going to the region of the lacrymal sac. The supratrochlear and infratrochlear nerves are blocked according to the method of O'Brien(25). About 2 cc. of procaine solution is also injected under the skin over the sac area (Fig. 1). With nasal forceps a small pledget of cotton moistened in 5% cocain solution with adrenalin is passed into the anterior part of the middle meatus of the nose and left for a few minutes until the mucosa is shrunk. The anterior part of the middle meatus is then packed with ribbon gauze moistened with 10% solution of cocain and adrenalin, care being taken to convey the packing well up to the level of the sac. The lower canaliculus is now dilated sufficiently with a conical probe to allow the passage of a canula and the lacrymal sac is syringed out with normal saline. A few drops of 5% cocain-adrenalin solution are injected into the sac through the lower canaliculus.

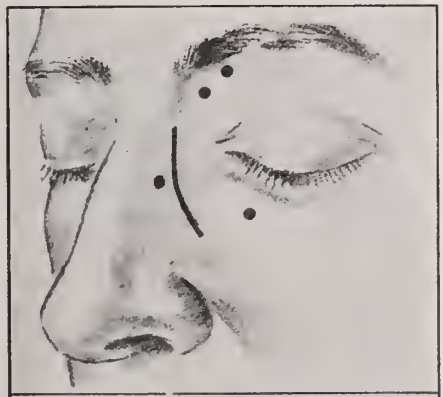
INCISION AND PERIPHERAL NERVE BLOCK

Fig. 1

The incision (Fig. 1) is placed halfway between the inner canthus of the eye and the edge of the bridge of the nose at least 12 millimeters from the inner canthus. (Mosher incision.) It begins on a level with the summit of the globe and is carried downward in a nearly straight line, a centimeter and a half to two centimeters. It is carried to the bone throughout its whole length. Retractors are inserted and held by an assistant, who by pressing the median retractor against the side of the nose, can check any bleeding (Fig. 2). With a small flat chisel the bone is exposed over the ascending process of the maxilla toward the anterior lacrymal crest. Division of the internal palpebral ligament is sometimes necessary. If it is divided it should be sutured back to the periosteum at the completion of the operation. With a dissector, the edge of the anterior lacrymal crest is now defined and the attachment to it of the anterior limb of the "Y" ligament is divided exposing the sac. The periosteum lining the fossa together with the sac is now pushed outward exposing the surface of the fossa almost as far back as the posterior lacrymal crest. The exposed fossa is now carefully examined for the presence or absence of bone pathology. The periosteum is separated downward as far as possible into the mouth of the nasolacrymal canal. Extreme care should be taken not to detach Horner's muscle from the posterior crest while freeing the sac(25). With punch forceps the lower end of the anterior lacrymal crest is now removed, if it should overhang the opening of the nasolacrymal canal. The sac

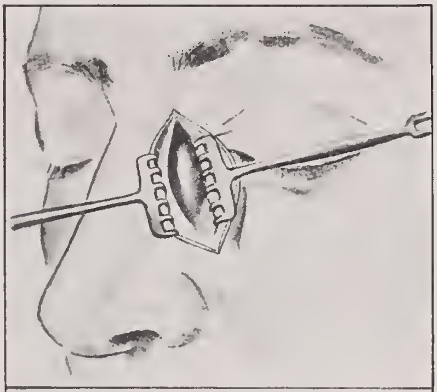
EXPOSURE OF THE LACHRIMAL SAC

Fig. 2

is now freed down to the entrance of the canal where it is cut completely across. The patency of the lower end of the sac is now determined and if closed, it must be incised with scissors. Two silk sutures are then passed through the mucosa and the wall of the sac about 2 millimeters from the cut edge, and the sac is lifted upward and protected with a flat retractor (Fig. 3). The lacrymal fossa is now exposed. A trephine 6 or 8 millimeters in diameter, depending upon the size of the fossa, is applied to the bone toward the lower part of the fossa against the ascending process of the maxilla and should be directed slightly downward and as nearly as possible at right angles to the plane of the nasal mucosa (Fig. 4). Since the bone is much thicker in front than behind, the trephine must penetrate more deeply anteriorly. It is well not to drill the hole too far upward or backward as air cells may be encountered. The trephine I am using is actuated by an electric motor. Care must be taken not to permit the rapidly revolving tool to touch the soft tissues, especially the skin, as it causes laceration. After perforation, the bone and corresponding nasal mucous membrane is removed. The sharp edges of the bone in the fossa are bevelled with a bur. The packing is withdrawn from the nose and a spatula is passed through the nostril to show that the opening is free and no tags of mucous membrane are overhanging. A good sized probe is now passed through the old nasolacrymal duct and with a chalazion curette the mucous membrane in this canal is destroyed. The ends of the silk sutures are now passed through the new opening into the nose and picked up with a pair of nasal forceps. This is not difficult, because the new opening is not under the middle turbinate but is slightly anterior to the anterior end of the middle turbinate. These sutures are now drawn firmly and the sac is inserted into the new opening. The sutures are held in place on the side of the cheek with adhesive tape (Fig. 5). An imperceptible scar is obtained if the muscles and fascia are sutured with catgut. The skin over it is approximated with silk. Pads of gauze saturated with vaseline are now placed over the incision and a firm bandage is applied. The patient remains in bed for the first day but is allowed up on the second. On the fourth day the skin stitches are removed. On the fifth or sixth day the sac sutures are withdrawn and the canaliculus is irrigated through with a normal saline solution. The pressure bandage is now left off. For a week more the new passage is irrigated daily with normal saline. Probing should not be done as it may do harm.

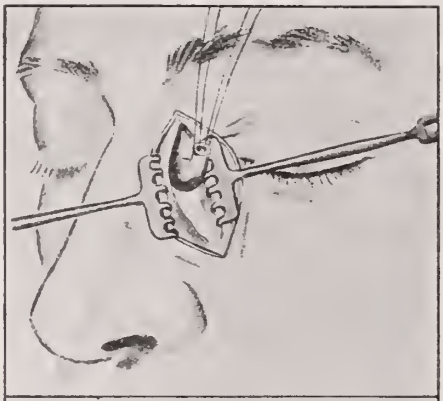
LOWER END OF SAC FREED AND SUTURES IN PLACE

Fig. 3

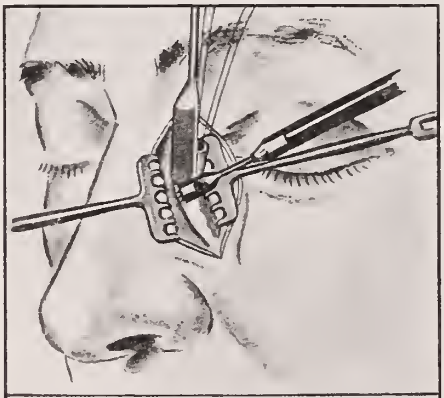
TREPHINE HOLE THROUGH MAXILLA INTO NOSE

Fig. 4

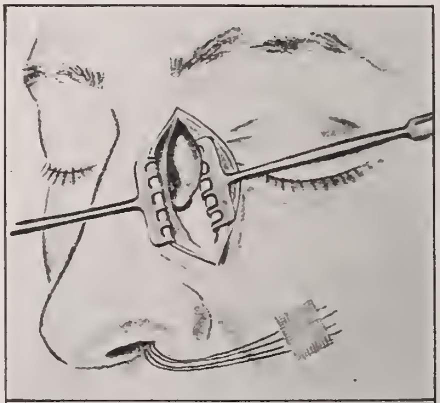
LACHRIMAL SAC IN NOSE SUTURES KEEPING IT IN PLACE

Fig. 5

The operation can be performed by anyone who has had experience in doing excision of the sac. Not much more time is required. Both sides may be done at the same sitting. It is the least difficult of all the cystorhinostomy operations. None of the sac is sacrificed and no cul-de-sac is left wherein infectious material may collect. Perfect drainage clears up the infection in the sac, and cultures taken from the conjunctiva two and three weeks after the operation show only the usual organisms found on the normal conjunctiva. The mucous membrane of the nose heals to the edges of the mucous membrane of the sac and there is no reaction in the nose. Little or no after treatment is required. In the cases operated, the new bony canal has not closed, and some of the patients now have been operated for over a year.

## CONCLUSIONS

Transplantation of the tear sac, in selected cases, is a simple and rational procedure which not only removes infection and re-establishes drainage, but also relieves epiphora. I would suggest that ophthalmologists do something for chronic dacryocystitis with stenosis of the duct other than routine excision or destruction of the sac, bearing in mind the indications and contraindications of the various types of operative procedures.

(Bibliography in Reprints)

## DISCUSSION

DR. C. M. SWAB, (Omaha): The essayist has pointed out the usual operations that are employed in stenosis of the canaliculi, mucocele of the sac and obstruction of the nasolacrymal duct. Dr. Stokes is to be congratulated for the excellent resume that he has made of the general subject and for the splendid demonstration of the little known Cirincione operation.

In commenting briefly upon the procedures pointed out, I should like to emphasize the importance of the probing operation in cases of congenital stenosis; one probing is generally sufficient in infant patients, to bring about a cure, even when the conjunctiva and eyeball are bathed in purulent discharge. In adults, it is probably less efficient than syringing the lacrymal passages with a non-irritating solution of boric acid, or physiological salt solution.

Extirpation of the lacrymal sac is of special value in cases of lacrymal sac abscess, since they are likely to recur. These cases are always hazardous to the eyeball and are sometimes responsible for destructive ulceration of the cornea. Moreover, even mucocele of the sac should be treated by this method preceding surgery on the globe, particularly cataract and glaucoma operations.

The operation which Dr. Stokes has described in detail possesses some advantages; chief among these is the preservation of adequate tear drainage. The only objection to extirpation of the sac, the operation which I have done most frequently, is the lack of provision for tear drainage. It has one great disadvantage in that it lacks simplicity. Although the essayist has perfected an excellent technique and has defeated some of the objection, thereby, it will be necessary for the operation to compete with extirpation of the sac, not only in efficiency of result but also in the length of the operation and the disability after operation.

I thank you.

DR. F. F. TEAL, (Lincoln): I want to bring up two points—one the preoperative, the other postoperative. In many of these operations there is still some tearing. The doctor mentioned the old maneuver of removing part of the lacrymal gland. It is a simple procedure and does no harm. It is surprising how much postoperative tearing you will get rid of if you will take out some of the palpebral portion of the lacrymal gland and convert the operation into one which is successful.

The second point is preoperative. There is a close proximity of the ethmoidal labyrinth to the lacrymal apparatus. I am firmly convinced after many years of observation that the basis of your sac infection is due many times to an ethmoid disease.

If I get a patient in the first stages of an obstruction of the lacrymal apparatus, notably characterized by tearing, I investigate that phase of the situation. Many times clearing up a sinus infection with a simple probing, or the Thompson operation, which, by the way, I have done many times with great success, is sufficient. I think many cases will be successfully handled without an extirpation, which for years has been considered the supreme test of the oculist's skill as an eye surgeon.

DR. J. J. HOMPES, (Lincoln): During the twenty-seven years that I have been interested in tear sac surgery, I have taken up the different fistulization operations as they have been presented only to find that all of them have their faults. It is certain that all of these operations meet with a certain percentage of failure, largely because of the fact that the anterior ethmoid cells come so far forward in many cases that the fistula must be made through them with the end result that the fistula is closed by granulations.

I am certain from several years of experience with the Thompson operation which attacks the nasal end of the lachrymal canal that this is the rational proceedure for establishing tear sac drainage. The nasal duct can be curreted either by way of the canuliculi or by incision into the tear sac from the skin side.

It has been my experience, that this procedure will give a higher percentage of results than any of the fistula operations.

Isn't it logical to expect as good or better results from an operation which re-establishes the normal lumen of the nasal duct than any operation which transplants the tear sac into an artefact higher up?

I recommend the Thompson operation for your consideration.

DR. STOKES, (closing): No method of treatment for obstruction of the nasolacrymal canal has proved entirely successful. It would seem that the ophthalmic surgeon must remain contented to pursue a less ambitious though equally practical aim, namely, the permanent comfort and contentedness of his patient. How this is obtained depends entirely on the pathologic conditions found, and the selection of an operative procedure indicated for that particular case.

In endeavoring to form an estimate of the success of an operation, of which the opinion of the patient is the sole criterion, one is confronted with the problem that different patients have different views as to what constitutes a satisfactory result. I am thinking of a troublesome epiphora. Some patients express themselves as cured and delighted after the tear sac has been removed, although the eye still waters; others, especially private patients, are very disappointed if any watering remains. For this reason we should attempt such operative procedures which will restore normal function, if such a thing is at all possible.

# DEMONSTRATION OF RESULTS OF RADIATION THERAPY IN HOPELESSLY INOPERABLE CARCINOMAS*

**A. F. TYLER, B. Sc., M. D.,**
**Omaha, Nebraska.**

It is my plan to show several patients. One. Mrs. L. K.. a patient who had a tumor of the left breast which proved to be lympho-sarcoma, not in the breast itself but in the axillary region near the breast. Not only did she have this primary tumor but it had metastasized to the mediastinal lymph nodes and periaortic lymph nodes. She was treated with high voltage x-ray over all of these areas and is still well and able to do her housework two years after the first treatment.

The next patient is a woman, Mrs. F. D. H., 44, who had the left breast removed for scirrhus carcinoma in June of 1930. Two years later the right breast was removed. Early in 1933 she came in because of pain in her back, weakness and loss of weight. Examination showed metastases to all of the bones of the body (torso). These were treated with high voltage x-radiation. She has gained twenty pounds in weight, does her housework and is still in good condition.

Another is a little girl of 11, B. L. S., who came because of a large swelling of the left mandible. X-ray examination showed extensive periosteal thickening extending out from the cortex of the mandible about 2 cm. on all sides. This thickening was composed of vertical striae of new bone with islands of new bone deposit through a large soft tissue mass. It was thought at first that this was inflammatory but after observation and several incisions it was decided it was periosteal sarcoma and high voltage x-ray treatment was given. This patient was first seen May 5th, 1934. Since that time the jaw has returned to normal dimensions, shows normally on the x-ray film and the patient is making normal growth with normal occlusion of the teeth.

The next patient is a man, J. J. P., 45, who had an ulcerated indurated area involving the floor of the mouth under the tongue, extending onto the lingual aspect of the mandible from the right first molar around to the left first bicuspid. The growth involved the floor of the mouth anterior to a line across from the right first molar to the left first bicuspid and was ulcerated and bleeding. X-ray examination showed destruction of the mandible from molar region to molar region. Radium and high voltage x-ray was given over a period of three months and the entire mandible from angle to angle came out in the form of sequestra. He is still well nine years after treatment.

Another patient, a man, F. H. R., 41, had developed a sore place under an artificial dental plate in the left lower molar region three months previous to my seeing him. During the week previous to this consultation a rapid growing tumor had developed and had become very painful and was making speech difficult. The inner aspect of the left cheek was indurated and ulcerated with elevated margins along the superior border about the middle of the cheek from molar region to the angle of the mouth. The disease extended downward over the bucco-gingival fold over the edentulous mandible, then down into the floor of the mouth and up on the lateral surface of the tongue from a point opposite the left anterior pillar of the pharynx around to the right cuspid region. X-ray examination revealed erosion of the mandible from the left angle forward to the incisor region. Diagnosis of squamous cell carcinoma was made. He was treated with the high frequency electric current, coagulating the diseased mandible, after which heavily filtered radium was applied over the left submaxillary gland region. He is still well four years after treatment.

Case No. 41735, Mrs. L. K., age 51. Immanuel No. 46269.

History: During the spring of 1932, the patient noticed a drawing sensation and a mass the size of a marble in the left axilla. This was removed for biopsy and pronounced lymphoma. She was free of symptoms until April, 1933, when she again found a mass in the left axilla. Tissue removed June 12, 1933, by Dr. H. H. Davis showed lymphoma. Shortly after this a mass appeared in the right submaxillary region.

Physical Findings: Palpable masses in the left axilla, right submaxillary and right cervical regions.

X-ray examination showed enlarged mediastinal glands.

Treatment: 140 K V P x-ray therapy was used over the right submaxillary and cervical regions while 200 K V P x-ray therapy was used over the mediastinal area, 1460 r units dosage.

Results: All the enlarged glands rapidly disappeared and the patient remained symptom free until early January, 1934, when she noticed a "lump in the abdomen." This proved to be enlarged periaortic glands for which she is now undergoing high voltage x-ray therapy.

The submaxilary and cervical regions are still free.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

Case No. 43842, Mrs. F. D. H., age 44. Immanuel No. 46592.

History: This patient was first seen June 3, 1930, when a diagnosis of cancer of the left breast and axillary glands was made. She was referred to Dr. B. B. Davis for surgical removal. This proved to be scirrhus carcinoma. Two years later the right breast was removed by Dr. Davis for chronic cystic mastitis. She was under frequent observation and remained symptom free until the spring months of 1933. In July she came because of pain in her back, weakness and loss of weight.

Physical examination: There were no subcutaneous nodules.

X-ray examination revealed areas of destruction in the left scapula, ribs, all dorsal and lumbar vertebrae with compression of the body of the twelfth dorsal as well as areas of destruction in both ilia and the upper ends of both femurs.

Treatment: High voltage x-radiation was given over the involved areas during fourteen days with a total dosage of 4380 r units.

Results: The patient is free of pain, has gained 15 lbs. in weight, does her own housework and x-ray films show healing of all the diseased areas in the bone.

Case No. 32679, J. J. P., referred by Dr. F. J. Schleier.

History: The patient, a white male, aged 45, stated that about three weeks previous to the present consultation, he had noticed "something wrong" with his mouth and consulted his physician who told him he had cancer.

Description: The teeth were present. An ulcertated indurated area involving the floor of the mouth under the tongue, extending onto the lingual aspect of the mandible from the right first molar around to the left first bicuspid. The growth involved the floor of the mouth anterior to a line across from the right first molar to the left first bicuspid and was ulcerated and bleeding. X-ray films showed destruction of the mandible from molar region to molar region.

Diagnosis: Cancer of the floor of the mouth and gums involving the mandible.

Treatment: This patient was treated by radium and high voltage x-ray using tolerance doses over a period of three months. The entire mandible from angle to angle came out in the form of sequestra.

Description after treatment and complete healing. The mandible is gone from first molar to first molar but the floor of the mouth is covered by normally colored mucous membrane and the tongue is unchanged in shape. The chin and lower lip have receded considerably. There has been no recurrence in nine years.

Case No. 39530, F. H. R., referred by Dr. F. J. Schleier.

History: A white male patient, aged 41, stated that about three months ago he developed a sore place under an artificial dental plate in the left lower molar region. Ordinary home remedies gave no relief so he consulted his physician who burned the place twice with the electric needle but it did not heal. During the week previous to the present consultation, a rapid growing tumor developed. This has become very painful and makes speech difficult.

Description: The mouth was edentulous. The inner aspect of the left cheek was indurated and ulcerated with elevated margins along the superior border about the middle of the cheek from molar region to angle of the mouth. The disease extended downward over the bucco-gingival fold over the edentulous mandible, then down into the floor of the mouth and up on the lateral surface of the tongue from a point opposite the left anterior pillar of the pharynx around to the right cuspid region. The x-ray films revealed erosion of the mandible from the left angle forward to the incisor region.

Diagnosis: Squamous cell carcinoma involving the inner aspect of the left cheek, the left mandible and the left side of the floor of the mouth from the anterior pillar of the pharynx around to the right lower cuspid.

Treatment: Under ether anesthesia the entire diseased area was coagulated with the damped high frequency electric current including the diseased mandible. The coagulated portion was curetted away as far as possible without bleeding, then inspected and palpated. All suspicious areas were recoagulated until only healthy tissue remained. The coagulated bone was removed with the rongeur forceps. As soon as the patient became conscious, normal saline irrigations of the mouth were used every three hours. Heavily filtered radium was applied over the left submaxillary gland region.

Description after treatment and complete healing. The mandibular border is depressed from the left angle around to the right cuspid region. The floor of the mouth and inner side of the left cheek is covered by normally colored mucous membrane. The left side of the tongue is irregular and is fixed to the floor of the mouth with the exception of .75 cm. at the tip. The patient can talk but has difficulty forming words involving the use of the labials, as P, T, etc. The patient has been well, with no evidence of recurrence, more than four years.

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## TO BE OR NOT TO BE A CENTENARIAN

"As a matter of fact, what is the use of living to be a centenarian, if the last twenty-five years or so are spent as a hairless, toothless, pepless, sapless, inspissated old excrescence on the general scheme of things? Alligators are said to outlive men, as a rule, but the logs in the swamp with them have about as much fun as they do. Who wants to be a nonagenarian human alligator?"

---

Office Boy: "There's a man at the door, and he says he has had nothing to eat for seven days."

Editor: "Bring him in; perhaps he can tell us how we can run this paper for another week."

---

Doctor: "You are all run down. Try a few electric baths."

Patient: "No, thanks, Doc. My brother got drowned that way at Sing Sing."

# OBSTRUCTIVE DYSPNEA WITH ILLUSTRATIVE CASES OF THE VARIOUS TYPES

W. A. CASSIDY, M. D.,
Omaha, Nebraska.

There is perhaps, a no more distressing situation confronting a physician than that of a patient suffering from lack of air. Since the condition may be acute, with urgent dyspnea, no physician should be without the necessary knowledge, first, to determine whether the obstruction is of such nature that it should be relieved by tracheotomy and, second, to be able to do the tracheotomy himself if the condition is sufficiently urgent.

Gabriel Tucker defines obstructive dyspnea as dyspnea due to obstruction in the airway, and very aptly classifies it in three types: (1) high obstructive dyspnea when the etiology is found in the pharynx, larynx or cervical trachea; (2) low obstructive dyspnea when the lesion is in the thoracic trachea or main bronchi; (3) bronchial obstructive dyspnea when the obstruction lies in the small bronchi.

Naturally, cases falling in class two and class three, require the attention of one trained in endoscopy. But we all should be prepared to recognize, and, if necessary, care for those in class one. The common causes of class one type of obstruction include laryngeal diphtheria, retropharyngeal abscess, foreign bodies in the pharynx and larynx, acute laryngeal edema and new growths of the larynx.

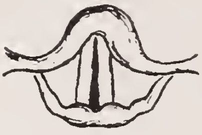

Fig. 1. Sketch showing position of vocal cords as described in Case No. 1.

The actual differential diagnosis in the urgent case is relatively unimportant. The vital thing is to know that the obstruction is "high" and, therefore, can be relieved by tracheotomy. The symptoms of high obstruction are pathognomonic. Above all others, is the unmistakable indrawing of the suprasternal notch during inspiratory efforts. In no type of dyspnea originating in the thoracic trachea or below is this sign present to the degree seen in high obstruction. In addition, will be found indrawing of the epigastric region and the supraclavicular spaces, and the intercostal spaces.

In addition to these striking findings there will usually be found stridor, wheeze and restlessness—all aggravated by exertion or excitement. Due to the tendency of the vocal cords (in the pathologic larynx) to collapse inward and downward on inspiration, obstruction is most apparent during the inspiratory effort.

The technique of tracheotomy varies somewhat with the amount of time available for its performance. If great haste is unnecessary, it may almost invariably be done in an orderly manner under local anesthesia, regardless of the age of the patient. If death is imminent, it is well to remember that, as Chevalier Jackson says, all one needs is a "knife and a pair of hands." Details of the procedure are outside the scope of this paper, but two points should be stressed. First, the trachea should be fixed between the thumb and the middle finger of the left hand, with the index finger of the same hand, palpating the trachea just below the cricoid cartilage. Thus the important anatomical structures of the side of the neck are displaced from the danger zone, and the right hand is free to carry the incision quickly and deeply down to the tracheal rings with virtually no hazard. Second, the incision should extend low enough in the neck to permit opening the trachea through the second and third rings, thus avoiding later stenosis of the larynx which occasionally occurs when the first ring or the cricoid cartilage is damaged.

Cases of low obstructive dyspnea also show, usually, characteristic signs and symptoms. The inspiratory indrawing is most conspicuous at the tip of the sternum and the lower intercostal spaces with very little indrawing of the suprasternal or supraclavicular spaces. An expiratory wheeze, the so-called asthmatoid wheeze, is frequently present, but voice change rarely occurs. Occasionally if the foreign body is movable there may be a distinctly audible "tracheal slap" which can best be heard with the bell of the stethoscope held in front of the patient's open mouth. X-ray examination may give definite information leading to actual localization of the intruder. The treatment, of course, is the surgical removal of the obstruction.

In the third type, bronchial obstructive dyspnea (where obstruction is in the smaller bronchi), there is no indrawing. Clinically, these cases closely resemble a true asthma but obtain no relief from medicaments such as morphine or adrenalin. Usually, bronchoscopic removal of the aspirated material is necessary for recovery.

To illustrate these types, I should like to report three cases, one of each variety:

Case I. A typical example of high obstructive dyspnea. On January 1, 1931, I was asked to examine the larynx of a child admitted to the Methodist hospital. The baby was four months old and weighed only eight pounds and thirteen ounces. The parents stated that marked difficulty in breathing was noted a few minutes after birth, a condition which had continued uninterruptedly from then on. Physical examination by the pediatrician gave little evidence of an enlarged thymus nor did the x-ray suggest a possibility. The voice was croupy in character, extreme retraction of the supraclavicular and suprasternal spaces was present, and the lower thoracic cage was deformed by the long continued and forceful retraction of the epigastric region. Direct laryngoscopy demonstrated a bilateral abductor paralysis of the vocal cords; both cords remained practically in the mid-line during both inspiration and expiration. The advisability of tracheotomy was discussed but refused by the parents, who did not think the child could stand an operation in the emaciated condition. As a compromise, an intubation was done with immediate cessation of all the symptoms of dyspnea. The child's general condition improved astonishingly in spite of the presence of some fever, which it was agreed was probably due to a pneumonitis shown by x-ray examination prior to intubation.

Tracheotomy was urged but discouraged until nine days later when the tube was expelled during a coughing attack. The baby was almost moribund when it arrived in the operating room. An urgent tracheotomy was performed, but death ensued three days later from bronchopneumonia.

I feel that this individual would have stood a much better chance if opportunity had been given to do an orderly tracheotomy earlier.

Case II. Low obstructive dysnea. A boy, M., age 4, the child of Christian Science parents, had been ill for three weeks before a pediatrician was called. There was a suggestive history of aspiration of a foreign substance. The child was admitted to the Methodist hospital on March 17, 1931, with physical signs described by the pediatrician as follows: absence of breath sounds over the left chest, dullness on percussion, some epigastric retraction, moderate dyspnea, the heart displaced to the left. There was a temperature of 104.1.

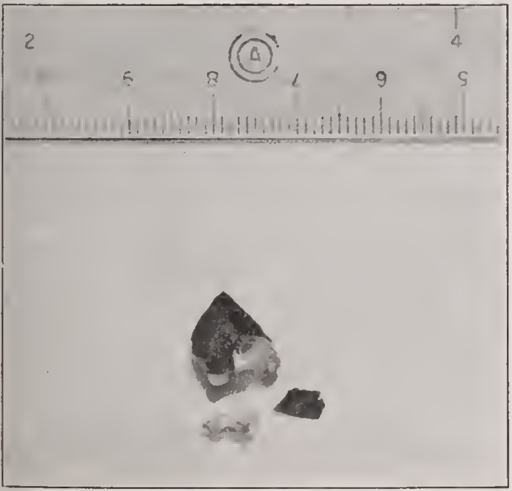

Fig. 2. Nut meat removed from left main bronchus as described in Case No. 2.

Bronchoscopy demonstrated a foreign body in the left main bronchus, which, on removal, proved to be an oblong piece of walnut meat. Prompt recovery took place, the child leaving the hospital seventy-two hours later.

Case III. Bronchial obstructive dyspnea. L. Y., age 2 years, was admitted to the University hospital pediatric service on February 27, 1933, with a history of having strangled while eating some minced carrots two days before. His temperature was 102, he was decidedly cyanotic, of an ashy gray color. Breathing was exceedingly labored with a rate of 80 per minute. X-ray examination demonstrated a bronchopneumonic reaction involving both lung fields. Breath sounds were exaggerated on the left side, but diminished on the right. Coarse rales were present on both sides.

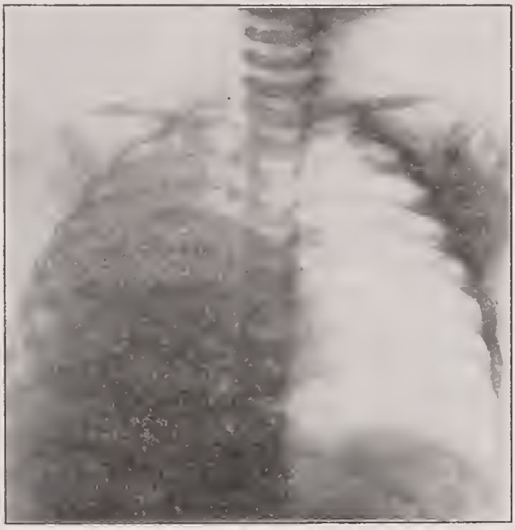

Fig. 3. Radiograph showing type of chest pathology when one main bronchus is occluded as described in Case No. 2.

The child's condition was so alarming that the pediatrist favored the use of an oxygen tent rather than immediate bronchoscopy. In view of the prompt relief of the cyanosis and dropping of respiratory rate to 45 per minute, the patient was continued under the tent. Particles of the food were coughed up at intervals and the child improved rapidly. When bronchoscopy was done on March 11, no foreign substance was demonstrated, only an inflammatory reaction remaining.

Ordinarily such cases are more safely cared for by bronchoscopic removal or aspiration of the offending substance as soon as diagnosis is made.

There are a number of circumstances which should arouse the suspicion of a foreign body or obstruction in the air passages in addition to the symptoms described under the three types. They are:

1. Intermittent dyspnea or cyanosis after a history of choking on a foreign body.
2. Unilateral chest disease, particularly in children.
3. Cough with blood streaked sputum.
4. Suggestive physical findings:
   (a) Limited expansion.
   (b) Impaired percussion note.
   (c) Diminished intensity of breath sounds distal to the foreign body.

5. Suggestive x-ray or fluroscopic findings:
   - (a) Fluroscopy shows the diaphragm flattened, depressed, and of less excursion on the affected side.
   - (b) Obstructive emphysema of the affected lung when the obstruction is not complete. Also producing a to and fro displacement of the mediastinal structures during respiration.
   - (c) Obstructive atelectasis in complete corking of the affected side, producing a permanently displaced position of the mediastinal shadows toward the affected side.

## CONCLUSIONS

1. The importance of recognizing the presence and location of obstructions in the air ways cannot be too strongly stressed.

2. In view of the fact that the records of 2,000 cases at the Bronchoscopic Clinic of Chevalier Jackson show that 90% are the result of avoidable accidents, it is the duty of the profession to teach prophylaxis to the laity.

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# AUTOGENOUS STREPTOCOCCUS VACCINES*

MILES J. BREUER, M. D.,
Lincoln, Nebraska.

In recent years interest in autogenous vaccines has increased considerably because of the fact that the streptococcus hemolyticus has been demonstrated with reasonable certainty as the causative factor in rheumatoid or atrophic arthritis; and because numerous workers are reporting favorable results following the use of vaccines made from the streptococcus in the treatment of that type of arthritis, especially since the conception of *desensitization* in treatment has replaced that of immunization.

Those who have attempted to grow streptococci routinely have found it a tedious and uncertain process, and have felt the desirability of a procedure that would simplify the task and make its results more dependable. A number of years of investigation and experimental work in streptococcus culture have evolved the following conceptions and technic:

For successful growth the streptococcus requires the following factors:

1. A temperature corresponding to that of the human body.
2. Sufficient moisture.
3. Fresh blood, preferably human.
4. Complement-destroying factor.

These required are fulfilled by the laboratory worker as follows:

In inoculating the culture, the material must not be allowed to cool down to room temperature, nor to dry out. Carrying a tooth or a pair of tonsils after removal, from the operating room down the corridor to the laboratory, or from the specialist's office to the internist's laboratory, is a procedure that does not extend much hope for successful culture of the organism. The technician must be present at the operation with warmed plates; the culture must be inoculated instantly after the tonsil or tooth has been removed, before it has had time to cool or dry; and a method of keeping the plates warm while they are being carried to the incubator must be utilized. It has frequently been the writer's experience to lose a plentiful culture of streptococcus because of leaving it in its test-tube of agar medium lying on the laboratory table for half an hour; as a result of the cooling the organism died, and subcultures proved sterile.

2. The danger of drying of the original inoculation material has already been mentioned. Moisture in the culture medium is also an essential. In general, streptococcus grows less successfully on plates made with the conventional 2% concentration of agar, because the growth of streptococci is slower than that of other organisms, and the medium becomes too dry before sufficient amount of growth has taken place. The most successful growths have occurred in the writer's experience in semi-solid agar containing about 0.5% of agar. This concentration of agar is desirable for blood cultures, but separations and isolations are difficult in it because the colonies tend to run together. When isolated colonies are desired, the plate must be sufficiently firm to prevent spreading of the colonies. The most successful cultures have been made on plates just barely firm enough so that the agar adheres to the under side of an inverted Petri-dish. This requires an agar concentration of about 0.7%. The exact concentration may vary somewhat with the moisture content of the agar stock that is being used, and must be determined individually for each batch of agar.

3. Hemoglobin in the culture medium is necessary to determine the hemolytic and green-producing properties of the colonies. Furthermore, there is undoubtedly some biological factor contained in the fresh blood that is favorable to the growth of these streptococci; though no accurate information is available in regard to its exact

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*Acknowlegements are due to Miss Florence Tucker, technician at the Bryan Memorial Hospital, and Miss Violet Payne, technician in the writer's office laboratory, for the large amount of detail technical help involved in working out the above problems.

nature. Control plates with dehydrated haemoglobin purchased on the market, on the one hand, and fresh human blood on the other hand, show a considerable preponderance of successful cultures in the latter medium. As human blood is always readily available and much easier to get than that of animals, the writer has confined his experimental work to it.

4. It has been known for some time that in blood cultures the presence of complement in the patient's blood inhibits the growth of the streptococcus and that brain substance and heart muscle are successful in destroying the complement in the medium and in removing its inhibitory effect on the growth of the bacteria. The same principle applies to the cultures in which blood is used as part of the medium for purposes as stated in the preceding paragraph.

Upon the basis of the above considerations, the following medium has been developed as the result of experimental work lasting over a period of several years, and has been found to be the most successful in growing streptococcus in comparison with numerous other conventionally utilized mediums:

Dehydrated brain-heart infusion, such as is supplied on the market by the Digestive Ferment Co., of Detroit, is made up according to the manufacturer's directions and to it is added 0.7% of plain agar and five drops of fresh human blood for each 10 c.c. of medium. The blood must be added to the medium after the latter has been melted at 100 degrees C., and then cooled down to 42 degrees C., for the obvious reason that it requires a high temperature to melt the agar, and because the biological properties of the blood are destroyed at temperatures above 45 to 50 degrees C. In making Petri plates, it is advisable to fit a piece of blotting paper into the lid to absorb moisture: if this precaution is taken very soft medium can be used and the necessity of inverting plates may be avoided.

Colonies will appear upon this medium within 72 hours and usually after 24 hours; in fact, many strains of streptococcus will grow on the medium more rapidly than the saphrophytic organisms. For this reason plates should be watched, and streptococcus colonies subcultured as promptly as they appear and before contaminating organisms have invaded them.

The second generation of streptococcus usually grows successfully on a slant of dextrose-agar containing heart infusion. The Digestive Ferment Co., supply this to the market in dehydrated form. This medium will produce a profuse growth of streptococcus on its surface in from 18 to 24 hours. In the process of making vaccines, it is advisable to utilize the youngest possible growth that is sufficient in quantity.

For inactivating the vaccine, heat is not the most desirable method because of the probability that it breaks down some of the molecules of the bacterial cytoplasm and thereby destroys some of the biological properties of the vaccine. After using a number of antiseptics, the writer has settled upon merthiolate as the most desirable, because of its rapid bactericidal power and because of that fact it is not irritating to human tissues. On one occasion the writer injected a preliminary dose of vaccine into a patient's arm and found that an error had been made and a live culture had been injected. 3 cc. of 1:1000 merthiolate were promptly introduced into the area and the patient, after being followed up for several days, showed only a slight reaction locally and none systemically.

The technique of inactivation is as follows: The bacterial emulsion, made by washing the surface of the medium with physiological salt solution, is kept down to the lowest possible volume. Usually, in the quantities used in this laboratory, 10 cc. is the amount produced, and this forms a very thick emulsion. This is placed in a sterile 50 cc. container with a perforable rubber stopper and an equal volume of 1:1000 methiolate added. Experimental data show that within an hour, on the average, no growth is obtained from test-cultures of this mixture, however, routinely, the mixture is allowed to stand for 24 hours; it is then diluted to 50 cc. with physiological salt-solution and check-cultures made for sterility.

For calibrating vaccines, the nephelometer method has been found most convenient. Graduated amounts of barium chloride are weighed out into 10 comparator tubes, sulphuric acid added to precipitate the sulphate, and comparisons of turbidity made with the vaccine. The details of the method are given in Kolmar and Boermer's Approved Laboratory Technique. The respective degrees of turbidity correspond to various numbers of organisms per cc.

In actual practice it is found that vaccine counts are of very little value for clinical purposes. One patient may react very severely to 100 organisms at a dose, whereas another will require ten times the concentration in order to produce any effects. However, some method is necessary to standardize the injection of a given batch of vaccine to a given patient; and turbidity comparisons are quite satisfactory for this purpose. For research purposes, counts or a nitrogen determinations may be made and are found to correspond approximately to the nephelometer readings.

# THE IMPORTANCE OF FUNGUS AS A CAUSE OF ASTHMA IN NEBRASKA*

GEORGE R. UNDERWOOD, M. D.,
Lincoln, Nebraska.

The role of fungi as causative agents in asthma was recognized by Van Leeuven(1) and Cadman(2) as early as 1924. In 1928 Hansen(3) of Hiedelberg published his observation that extracts of molds yielded positive skin reactions in 15% of his asthmatic patients. In this country Hopkins, Benham and Kesten(4) of Columbia University were the first to report a case of asthma due to a fungus, *Alternaria spp.* Six months later Bernton(5) reported a case of asthma due to *Aspergillus fumigatus.*

The purpose of this paper is to report seven cases of asthma in Nebraska due in whole or in part to fungus alternaria. This is probably the most prevalent single type fungus in Nebraska. It is impossible to expose plates in any area without finding it in varying proportions to other fungi.

Fungus alternaria is a heavy spore former, these spores being formed in chains, and as is typical of all plants of this type, when the media for growth becomes poor, large numbers of spores are formed. Thus following damp weather, and a sudden drop of temperature the spores decend in veritable showers and show their effect in cases sensitive to it.

There are two periods of the year in Nebraska in which we expect increased numbers of the spores to be present. In the early spring, having warm days followed by a sudden drop in temperature and in the late fall during October and November when the same climatic conditions prevail.

Spores of alternaria have been seen by us in gastric contents, stools and sputum. Several spores were seen in one urine specimen, which was probably a contamination. We have seen one apparent cutaneous infection with this fungus.

Of the seven cases I wish to mention, the age variation was from six to twenty-nine. The duration of the asthmatic seizures were from two to ten years. The actual asthmatic attacks were seasonal in character, although two cases suffered from a perennial rhinitis throughout the whole year from the same cause, in addition to acute asthmatic seizures during the time of heaviest occurence. One case which was sensitive to alternaria only, had no symptoms except during early spring and late fall.

Four of these seven cases had the fungus sensitivity in addition to a pollen sensitivity which also manifested itself in asthma during the pollen season. All four of these cases had previous treatment with pollen extracts and good results during the pollen season, only to have increasingly severe attacks during the time of fungus showers. One case had an additional sensitivity to *Aspergillus fumigatus* in conjunction with alternaria and several pollens.

The duration of treatment of these cases has been from one to three years. The treatment has been similar to hay fever desensitization, the perennial method being used. They have all been asthma free since the start of treatment.

The maximum dose used in treatment has been 1/10 cc. of a 1-100 extract*, this has been used in combination with pollen mixtures when indicated.

## CONCLUSIONS

1. Fungi are known to be important asthmatic excitants.

2. Alternaria is a very common mould throughout the year in Nebraska.

3. Findings and results obtained in these seven cases, warrants their general use in diagnosis and treatment in cases that might be classified as non-reactive patients.

4. Excellent results may be expected in these cases by routine treatment.

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He: What would you do if you found a horse in your bathtub?

She: I don't know.

He: Pull out the plug.

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*Presented before the annual meeting Nebraska State Medical Association, Omaha, May 14-16, 1935.

*Extracts furnished through kind cooperation of the Arlington Chemical Co., Yonkers, New York.

# MECKEL'S DIVERTICULUM CAUSING INTESTINAL OBSTRUCTION: REPORT OF CASE*

CLAYTON ANDREWS, M. D., M. S., F. A. C. S.,
Department of Surgery, Lincoln General Hospital.
Lincoln, Nebraska.

Mrs. H. H., white, female, age 51 years, was admitted to The Lincoln General hospital early in the morning of March 20, 1935. At this time she was seen in consultation with Dr. John C. Thompson.

## HISTORY PRESENT ILLNESS:

For two years patient has had occasional cramping pains in lower abdomen, chiefly on the right side, to which she paid no particular attention as there were no other symptoms and she suffered no loss of time due to the pain. Twelve hours before admission she was suddenly siezed with a very severe cramping accompanied by rather persistent nausea and vomiting, but without pain relief. Nausea has continued up to time of this examination. No compaint of constipation, diarrhoea, or gaseous distention. There are no genito-urinary symptoms, in fact, patient has had no symptoms other than those above described.

## PREVIOUS MEDICAL HISTORY:

Influenza—1918.
Benign cervical polyp removed—1934.

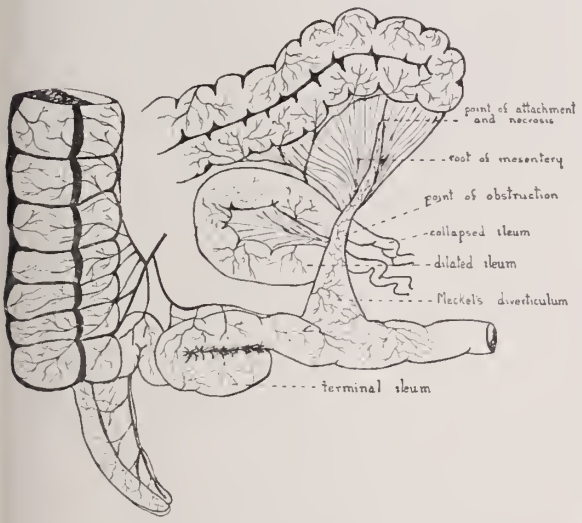
## FAMILY HISTORY:

One daughter, age 22, otherwise irrelevant.

## PHYSICAL EXAMINATION:

Patient in bed—acutely ill. Well developed adult white female of 51 years. Head, neck, chest, extremities, glands, and reflexes are all normal.

Abdomen: Not distended. No palpable mass—no hernia. Patient locates pain at McBurney's point. In this area there is tenderness grade three, and rigidity of the right rectus muscle grade three.



Intestinal Obstruction Due To Meckel's Diverticulum

Pulse: 80.
Respirations: 18.
Temperature: 98.
Blood Pressure: 156/98.
Urinalysis: Negative.
W. B. C.: 11,750.
Differential: Segmented 77, Staffl, Lymphocytes 22.
Blood Sedimentation: 20 mm in 60 minutes.

## OPERATION:

A diagnosis of acute appendicitis was made and immediate operation advised and performed. Under nitrous oxide and oxygen anaesthesia a right rectus incision was made. Upon opening the peritoneum a moderate amount of clear amber fluid was found in the lower abdomen and removed by suction. The appendix was delivered; it was abnormally long and slightly inflamed but presenting insufficient pathology to account for the symptoms, physical findings, and free fluid. Further exploration revealed a Meckel's Diverticulum arising from the antimesenteric border of the ileum approximately 16 inches proximal to the ileocecal junction. The base of the diverticulum communicating with the lumen of the ileum measured one and one-half inches; from this point the lumen of the diverticulum extended one inch, then became a cord-like oval band having no lumen, a length of four inches, a diameter of one-fourth inch, with the distal tip attaching firmly to the mesentery about in the mid-line of the body. The length of the diverticulum from base to tip was five inches. The attached tip was red, inflamed, and grossly appeared to be in the early stage of necrosis. Beneath this tense cord were found two loops of small bowel with their lumen completely obstructed, dilitation above, and collapse below the constricting point. The circulation of these loops was not obstructed, and upon releasing the constricting diverticulum the loops promptly assumed their normal size and appearance. The diverticulum was excised in the usual manner, the wound closed without drainage, and the patient returned to her room.

## PATHOLOGY:

Dr. J. Marshall Neely, hospital pathologist reported as follows: "Appendix normal. The tip of the diverticulum is black and appears somewhat necrotic. Microscopic sections show marked congestion and one area shows definite necrosis. There is comparatively little cellular infiltration and judging from the histological changes, one might assume that the necrotic changes in the wall are due to infarction or mechanical obstruction."

## RESULTS:

The convalescence was entirely uneventful, the patient being up on the eleventh postoperative day, and being dismissed from the hospital on the thirteenth postoperative day. Since leaving the hospital the patient reports a normal appetite, and digestion, normal daily stool without medication, in fact, no discomfort of any kind.

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## THE UNDER DOG

Fritz (running after doctor)—Doctor, you must come back to our house. The front door has fallen down.

Doctor—That has nothing to do with me. You must go to the carpenter.

Fritz—But daddy is underneath the door.—Lustige Koelner Zeitung, Cologne.

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*Presented before the annual meeting, Nebraska State Medical Association, Omaha, May 14-16, 1935.

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## AN EXECUTIVE SECRETARY

A special meeting of the Councilors of the Nebraska State Medical Association convened at the Fontenelle hotel, Omaha, September 15, for the purpose of arranging for an executive secretary as provided for by the House of Delegates at the last annual meeting in May. Eleven of the twelve councilors were present as were also Secretary Adams, President Selby, Past President Bixby, President-elect Covey, Journal Editor Long and Roy Fouts of the Defense committee.

Two applicants appeared in person. A committee consisting of the chairman of the council, Cooper, the president, Selby, and the president-elect, Covey, together with Secretary Adams, as ex-officio member, was created with instructions to employ an executive or field secretary whose duties shall be to secure memberships, organize county societies where none exist, contact the public and appear as speaker before lay organizations broadcasting the ideals and principles of the organized medical profession, to appear before county and district medical societies to preach loyalty to organized medicine, and such other duties as may devolve upon him.

Within the last few days the committee has employed Mr. M. C. Smith of Curtis as executive or traveling secretary and he hopes to be on the job October first. See page 405.

*The organized profession needs an organizer, a contact man in the field, to represent the profession, its needs, its aims, its ideals and to explain to the lay public just what the profession stands for.*

## NOTES ON ETHIOPIAN CUSTOMS AND CIVILIZATION

Ethiopia remains the last unconquered country in Africa. Situated in the northeastern part of the continent of Africa, it is a land of low swampy malarial areas, of rich high central plains alternating with hundreds of miles of desert, and of rugged mountains, alpine in character and over 14,000 feet high.

It is a country of many peoples, but no Negroes, except slaves brought into the country from Central Africa and the mixed descendants of slaves. There are many Mohammedans. The ruling class are the Amhara claimed to be descendants of the Queen of Sheba. The Queen of Sheba was a young woman with a defective foot, who at that time ruled on both sides of the Red Sea. King Solomon was a man of mature years and among his other talents, he was a healer of great renown. The Queen journeyed to Jerusalem to consult King Solomon and one of the results of that journey was a son born to the Queen of Sheba and King Solomon. This son became Menelik I of Ethiopia. The present ruling Emperor, Haille Selassie, traces his lineage directly to the Queen of Sheba. The ruling classes and Amharas generally, are the only people of any literacy.

The only railroad is a line over 700 miles long from Djibuti in French Somaliland to Addis Abbaba, the capitol of Ethiopia. Ethiopia has no coast line. There are almost no roads, but it does have some telephone lines. It is a backward country and the people are backward people.

There are a number of semi-civilized tribes who live almost entirely by grazing their flocks and herds of sheep, goats, cattle, horses and mules. Water is very scarce on the high plains. Wells are great distances apart. The people are accustomed to use very little water. In at least one of the tribes, milk pails are rinsed with the urine of cattle.

Sexual relations and marriage customs in several of the tribes are beyond belief. In one tribe the "best man" is privileged to share the bridal chamber with the bride after the second post nuptial night and on other occasions. In another tribe, after the prospective bride is bargained for by her parents paying a certain dow-y, the prospective bridegroom does not see the rospective bride until the marriage day, when e calls and takes her to his home where the remonies are held. On the consummation of ie marriage relation, the "best man" must be atisfied of the bride's virginity as evidenced by fresh blood stain, showing defloration. If not ound, the bride is cast aside as unclean and unorthy and sent back to her people.

Of the possibilities of conquest of Ethiopia by he Italians as threatened, a writer in the current Atlantic says: "Any reasonable person will dmit that England could, if she so desired, conuer Ethiopia, but few now feel the same rearding Italy. Italy may well have the adantage, but the outcome is not inevitable. The talians are not used to colonial wars in the ritish sense. There is no great Northwest rontier tradition in their heritage. They conuered Libia, but to do so was costly, and the onquest involved butchery rather than strategy. t is one thing to drive tanks armed with mahine guns across the desert; it is another to nake them climb cliffs and to make them dart racefully down precipices. Mountains, ravines, ogs, deserts, deep river canyons, poisoned wells, eat and distance, all stand against Italy, not to nention men. Italians must bring with them heir food and most of their water.

"The Ethiopians carry nothing but cartridges nd a pouch of grain. Living off the country nay prevent concentrations, but it greatly increases mobility. Italians receive a few months of training in broken country fighting; Ethiopians have been fighting that way all their lives."

## ELKHORN VALLEY MEDICAL SOCIETY

Perhaps no more practical or more interesting program was ever rendered before the Elkhorn Valley Medical Society in the thirty-nine years of its existence than that given before the meeting August 22 at Norfolk. The expectant interest in the program was attested by the attendance of seventy-five physicians from the Norfolk area and from Lincoln, Omaha and Sioux City. The program was a happy combination of out-of-state and local talent.

Dr. L. L. Loder, Tilden, gave a case report of a throat infection that responded to diphtheria antitoxin although it lacked the classical syndrome of that disease. Tetany complicated the case.

Dr. H. E. Harvey, Lincoln, discussed in a very practical manner the minor ailments of pregnancy and made a plea for more attention by the physician to the complaints of the pregnant woman.

Dr. Charles M. McKenna of Chicago discussed the surgical kidney, as he, alone, can discuss the subject. Many practical points scintillated from his address.

Dr. Cecil G. Leitch, Kansas City, Mo., gave an illustrated talk on Coronary Occlusion. While dealing with a highly technical subject, his discussion was readily followed because of the illuminating manner of presentation.

Dr. S. A. Campbell, Norfolk, discussed intestinal obstruction, stressing early recognition, prompt surgical attention and the newer procedures in the treatment of intestinal obstruction.

Dr. Arthur Steindler, Iowa City, one of the foremost orthopedic surgeons of America, perhaps of the world, in a graphic manner presented the subject of Myogenic Contractures. Very much can be done for such cases by intelligent and persistent corrective treatment.

Dr. Frank Rudloff, Battle Creek, was chosen president for the ensuing year.

## THOMAS McCRAE

(Dr. Thomas McCrae, Magee professor of practice of medicine and clinical medicine, Jefferson Medical College, Philadelphia, died June 30, aged sixty-four years. He had been coauthor with Sir William Osler of the seven volume System of Medicine generally called Osler's.)

The last of the Guelph McCraes! For, of the two boys of Colonel David McCrae, Tom left no issue, and John never married. A great pity! It was a stock that would ever bear fine fruit. Tom's father, in 1917, at the age of seventy, recruited and trained in Guelph, and led overseas to England, a field battery; and was sore tried when he was not allowed, by reason of his age, to lead his men on to France and into action. The end did not crown his work. The mother of Tom and John, Janet Eckford, was a rare woman, (though not so rare in Scotland!); one who was on the same intellectual level as her men-folk, perhaps above them (though not John) in humour and kindliness. And where shall we find in this world a thing more good and delectable! (How often did John quote to the writer the witty parts of her letters!) And then the two sons, Tom and John, both of whom attained high eminence in the practice and in the teaching of Medicine. In the fundamentals,—

clear-eyed honesty, great industry, high-thinking, love of learning, intolerance of meanness, a profound sense of religion in its deep and tender meaning—the two were alike. On the lighter side, the side of good-fellowship, John had the easier and surer touch. Of him Lord Grey said, on the occasion of that well-known trip from Winnipeg by Hudson's Bay, Labrador, Nova Scotia, not forgetting Orwell, in P. E. I., and so round to Montreal—"Yes, McCrae was with us. We travelled 3,000 miles, and McCrae had a story for every mile." But Tom was graver, more serious, though he also was full of a quiet humour. He was a slave to duty—a willing slave. It would be hard to find a man who failed less often in doing his job to the last tittle. And what was his job? The study of books, the care of patients, the teaching of students, the recording of his own knowledge as he gained it; and, finally, to come to the particular, the collaboration with his great Chief in that "magnum opus," the Osler-McCrae "Modern Medicine." In this last, on which he did a very large share of the editorial work, besides contributing the chapters on Typhoid Fever and on Arthritis, and also in his admirable revision of the later editions of Osler's Text-Book, after Osler's death, we see his real monument, his title to the regard and the admiration of his fellows and of those who shall come after. Thomas McCrae was a deep student, a fine clinician, a great teacher, both in the printed and the spoken word, and an admirable friend.

Honour to whom honour is due! Let us, therefore, add a word of honour for her who, throughout their married life, helped Tom McCrae to accomplish his life's work. The many, many hours which he spent at his writing-desk, after the day's routine was over, were her sacrifice to his career, her contribution to his success. They also serve who stand and wait. None the less a sacrifice, however willing, however loving a one!

E. W. A.

—In Editorial Comments,
Canadian Medical Journal, August, 1935.

## THE DISTRICT OF COLUMBIA WAY

The Medical Society of the District of Columbia proposes:

1. That the American Medical Association undertake a publicity campaign on a national scale, using every available resource of magazine, newspaper, radio and popular forum, to acquaint the American people with the social and economic dangers inherent in the system of state controlled health insurance.

2. That the American Medical Association intensify its efforts to instruct the members of the profession upon this general subject by maintaining a speakers bureau to provide qualified speakers to participa in the programs of state and county societies upon i vitation by such societies. And the Society of th State hereby invites the A. M. A. to take the initiati in providing such instruction to our membership i accordance with an orderly plan to cover our enti jurisdiction.

3. That the American Medical Association use e ery available method to recognize and publicize th organized plans maintained by its component societi for the adequate distribution of medical service a the current response of the medical profession to pop ular needs.

## RELIABLE APPARATUS

*The Nebraska State Medical Journal* has re ceived from the American Medical Association small pamphlet containing a list of the apparatu accepted by the Council on Physical Therapy, th first one published under the direction and super vision of the Council. In addition to the lis and description of accepted apparatus, the pamph let contains indications for the use of each typ and a statement relative to efficacies and dangers

This pamphlet is a real contribution on th part of the American Medical Association in be half of rational therapeutics—an effort to hel place physical therapy on a sound, scientific basi for the benefit of the medical profession.

One of the purposes of the Council on Physica Therapy is to protect the medical profession, an thereby the public, against inefficient and possibly dangerous apparatus and against misleadin and deceptive advertising in connection with th manufacture and sale of devices for physical therapy.

*Apparatus Accepted* includes all the device accepted by the Council prior to May 1935. An physician can obtain this pamphlet free by writing to the Secretary, Council on Physical Therapy A. M. A., 535 North Dearborn Street, Chicago. Illinois.

## TUBERCULOSIS INSTITUTES

The Nebraska Tuberculosis Association i planning Tuberculosis Institutes with a two-da program in each of the following cities:

Lincoln, October 14-15.
Norfolk, October 15-16.
Grand Island, October 16-17.
North Platte, October 17-18.

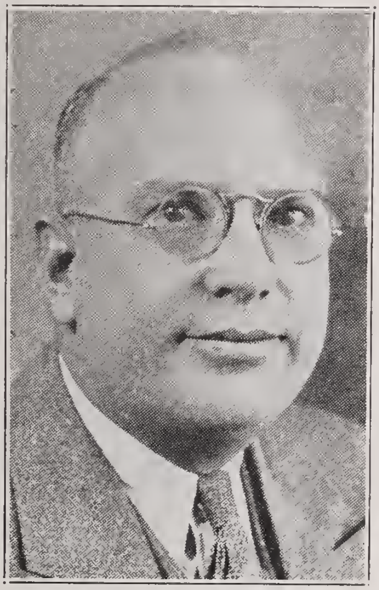
The first day's program in every city is relate to nurses' instruction—the second day's to be a medical program devoted to clinical tuberculosis

(Note by the Editor: The Madison Six County Medical Society has signified its intention to cooperat with and take part in the institute to be held at Norfolk, foregoing its own program for the month o October.)

## OUR EXECUTIVE SECRETARY SPEAKS

As the newly elected Executive Secretary of e Nebraska State Medical Association I want extend my personal greetings to all physicians the state, whether or not they are members of e association at this time.

In the new order of things I can see wonderful ssibilities for organization work in the future. is true that this can be accomplished in only one ay and that is through endless effort on the part f the executive secretary and with full coopera- on of every physician.



**MR. M. C. SMITH**
**Executive Secretary**

We will have a definite objective and definite an to work to. There are certain points to be overed and certain organization work which ust be done in the near future and for this rea- on it is the plan of your executive secretary to e in the field for the greater part of the time ntil the first of the year. It is the plan now to end, if possible, about a week in each Councilor istrict and if possible we want to have it so ar- nged that during that time we can have meet- gs of all county and district associations, where lans for the future may be laid before every ysician, and to also tell you at that time some f our plans for the future. We want to make ese meetings as interesting as possible and to ave as many physicians as possible present.

The art of healing is one of the oldest arts own to man, and membership in your medical ssociations should mean a great deal to every an who has the right to belong. It is a privilege and an honor to be able to have a membership in such a time honored organization as the Nebraska State Medical Association, and to the end that the association may accomplish the most good for everyone concerned we hope that 1936 may see the largest membership and the greatest step forward since its organization.

—M. C. Smith.

## THE FUND FOR AGED INDIGENT PHYSICIAN

We regret to state that the fund for an aged indigent physician mentioned in these pages a number of times during the summer has not reached the proportion we had hoped. The modest amounts received have been placed at the disposal of the party for whom it was intended. Below is a list of the donors. Further contributions, if any, will be thankfully received.

**DONORS**

G. W. Briggs
F. A. Long
O. W. Everett
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Theo. Peterson
A. L. Anderson
Walter Benthack

## WHAT SHOULD A PATIENT WITH ARTHRITIS EAT?

Walter Bauer, Boston (*Journal A. M. A.*, Jan. 5, 1935), points out that the first requisite in treating each patient with skeletal symptoms is to determine whether or not the symptoms are due to arthritis and, if so, to determine the type of arthritis. Not until this has been done should one attempt to prescribe a diet. There is no specific diet for patients with arthritides of known origin other than the dietary which would ordinarily be prescribed whenever the particular disease or etiologic agent responsible for the arthritis is dealt with. Gout is the one exception. Degenerative and rheumatoid arthritis represent the diseases one ordinarily thinks of as chronic arthritis. They are not casually related or due to the same etiologic agent. In degenerative arthritis, diet is indicated only in the presence of obesity, and then it should be sufficiently low in calories to allow weight reduction but adequate in every other respect. There is no evidence to prove that a low carbohydrate diet is indicated in rheumatoid arthritis, nor is there any proof that it is efficacious in curing the disease. Patients with rheumatoid arthritis should eat a diet high in calories (unless they are overweight), high in vitamins and adequate in respect to calcium, phosphorus and iron.

# dramatized radio programs for medicine and health!

---

## "your health
## ladies and gentlemen . . ."

This toast—through the music—each Tuesday at 5:00 P. M. Eastern Standard Tim (4:00 P. M. Central Standard Time, 3:00 P. M. Mountain Time), will introduce the new radi program of the American Medical Association. It will be offered over the Blue network o the National Broadcasting Company, beginning October 1, 1935. With the cooperation of th National Broadcasting Company, a new type of program, in vivid dramatic form with incidental music, is being developed, showing

## medical emergencies and how they are met!

The hero of the medical emergency, the doctor who is available day and night for th protection and promotion of YOUR HEALTH, is the real sponsor of this series of practica and entertaining health broadcasts.

Each Tuesday—

## ". . . ladies and gentlemen,
## your health"

**BLUE NETWORK, N. B. C.: WJZ — WSYR — KDKA — WCKY — WENR — WIBA — KSTP — WEBC — KFYR — KWCR — WREN — KWK — KSO — WBAL — WMAI WTAR — WPTF — WWNC — WSOC — WIS — WSM — WMC — WJDX — KVOO — WKY — WFAA — KTBS — WOAI**

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## EDITORIAL PARAGRAPHS

The Inter-State Postgraduate Medical Assembly will be held at Detroit, October 14 to 18 inclusive.

The world's supply of radium is about one and one quarter pounds valued at about $1,500.-000 an ounce.

The federal tax on alcohol is $3.80, but hospitals may purchase alcohol for medicinal use without payment of the tax.

One more "due" was recently paid into the treasury of the Nebraska State Medical Association and the membership stands at exactly 1100.

*Bacillus abortus* vaccine has been brought forward as the only remedy showing real promise in cases of undulant fever. It should be used early.

Dr. C. W. Pollard, Omaha, obstetrician, has been appointed medical coordinator for Nebraska without remuneration by the Nebraska relief committee.

In Esthonia the condemned murderer has the choice of being hanged or of drinking a cup of hemlock. In a recent case the condemned drank the hemlock and expired promptly.

Beginning October 1st, the American Medica Association through the National Broadcasting Company will broadcast dramatized radio programs featuring medical emergencies and how t meet them.

A select committee of the British House o Lords has reported unanimously and conclusively against the passage of a bill brought forward to legalize the teaching and practice of osteopathy in England.

Graeser and Rowe have discovered that adrenalin given by inhalation from an atomizer will relieve asthmatic attacks. It must be used from a glass atomizer, because contact with metal causes deterioration. The number of inhalations required for relief is a matter of individual experiment.

"Religion is apparently of no consequence as a deterrent to participation in an induced abortion. I have seen criminal interference in the most devout and orthodox of all religions, and as long as human beings are the subject of physiological emotions which they cannot control, we shall have the problem of induced abortion."—J. W. Kahn in Med. Rec.

It is related on authority that Dr. Olin West, Secretary of the American Medical Association, ent letters to the mayors of 400 American cities sking for information on the widely broadcasted tatement that fifty per cent of the people of the United States were without adequate medical are on the basis of inability to pay. The result f this survey was that not one mayor was able cite one such case.

A story runs that Dr. William Tecumseh usk, erstwhile famous New York obstetrician nd teacher, once said to his class: "Gentlemen, f course you will marry soon after you have ocated. Let me advise you that when you are going out for an evening with your wife, do not stand at the staircase and say, 'My dear, are ou ready, are you ready?' But just pick up a ook and read. You will be astounded at the mount of information you will accrue in a lifetime."

The English as everyone knows, love titles, ut they bestow them much more cautiously than ve do. Such titles as "doctor" and "professor" re also bestowed with circumspection, and even vith what may be called reluctance. A surgeon s seldom "Dr." in England, and a dentist almost ever; "Mr." is thought to be good enough for hem. Even many physicians—or, as the English refer to say, medical men—are not "M. D.'s" ut only "M. B.'s" But when an Englishman is ll he "sends for the doctor," as we do. In this ase the demoralization produced by his malaise xcuses his departure from the strict letter of onorific decency.

## OBITUARY

**Dellizon A. Foote,** Omaha; native of Ohio; Chicago Homeopathic Medical College, 1887; surgeon in Omaha for forty years preceding retirement in 1928 on ccount of illness; died of a paralytic stroke August 26, 1935, aged seventy-five years.

A widow and four children survive.

**Thomas Coe Little,** San Diego, Calif.; Creighton Medical College, 1896; practitioner at Bloomfield bout the turn of the century; former member Nebraska State Medical Association; practitioner at San Diego for upward of thirty years; a noted psychiatrist; died of a heart attack, about August 20, aged about sixty-one years.

A widow and two daughters, survive.

**James Stech,** Council Bluffs; Creighton Medical School, 1913; practitioner at Tobias, Milligan, Bloomfield and South Omaha; for the past ten years in practice at Council Bluffs; died while on vacation in Minnesota the latter part of August, aged about forty-six years.

A widow and two daughters survive.

Ages of development, until at last we know how to get the vitamins that wild things get by eating what they like.—*Easton Express.*

## AUXILIARY NEWS NOTES

Mrs. Chas. W. Hickey of Bennington lost her mother recently.

Dr. C. C. Tomlinson's mother passed away September 12 at Red Oak, Iowa.

Dr. and Mrs. W. C. Bates of Rushville visited relatives in Omaha the first week in September.

Douglas County Auxiliary board met for luncheon at the Paxton Hotel, September 12, to discuss plans for the coming year's work.

Funeral services for Mrs. W. H. Pruner, widow of the pioneer, Dr. W. H. Pruner of Kennard, were held at Blair, Sept. 2, with burial at Kennard.

Auxiliary membership includes mothers of doctors and although comparatively few mothers are active we feel that they "belong" and share the bereavement of their loss.

In the state of New Jersey, one winter, every County Auxiliary devoted one meeting to entertaining the doctors' mothers, a graceful recognition which was much appreciated.

Officers for 1935-36 are: Mrs. J. Harry Murphy, president; Mrs. Howard Hamilton, vice-president; Mrs. Arthur Offerman, secretary-treasurer. Directors: Mrs. Calvin Davis, Mrs. John Hyde, Mrs. John Simpson, Mrs. Manuel Grodinsky.

Dr. and Mrs. Adolph Sachs returned from a six weeks holiday on the west coast. Mrs. Sachs leaves September tenth to spend a week in New York City before going to Wellesley, Mass., where her daughter, Gwendolyn, will enter Wellesley College.

Dr. and Mrs. J. Harry Murphy spent five weeks the past summer in the Jackson Hole Country of Wyoming. Other Omaha doctors and their wives who have returned recently from vacations in the mountains are: Dr. and Mrs. John Hyde, Dr. and Mrs. Chas. Moon, Dr. and Mrs. G. W. Dishong, and Dr. and Mrs. Geo. Neuhaus.

The Richardson County Woman's Medical Auxiliary supplied a float in the 4-H Club fair parade recently. The Health Champions, selected by the Medical Society Committee rode on this float which was the handiwork of Margaret and Jane Gillispie, Claire Hustead and Dick Miner, all daughters and sons of Doctors. The float was beautifully decorated in green and white and although ineligible for a prize, (limited to 4-H Clubs) was considered most attractive.

## SPEAKING OF APPENDIX OPERATIONS

Mrs. C. W. Pollard, Omaha.

Part time during six months, I had been conversationally consulting four or five doctors. A week of tests, including barium and its attendant difficulties, and a dozen x-rays told me that I had no trouble with an appendix. Evidently an appendix resents being ignored, for after some tedious months, mine asserted itself and broke loose from all restraint. A hospital room must be had at once. I was put into a cool looking green and white "best" room, with a white clad nurse to tell me to moisten my lips so she could take my temperature.

Four puzzled doctors stood about me discussing the blood count and the temperature. Nothing seemed to fit any prescribed condition. After a few x-rays, I was told I couldn't have a drink of water until I got back from the operating room. It was all right with me because the x-rays of the winter had told me I had no trouble with the appendix, so why worry. I knew I couldn't have peritonitis if I didn't have an appendix removed, so there was no mental hazard there. Sometimes ignorance helps. I was the most surprised person when the surgeon told me afterward that I started with peritonitis. However, I did know

I couldn't take morphine, so I caught the nurse just in time to have it changed. I'm thinking of wearing a legend "Don't give me morphine."

Such attention as a doctor's wife gets in a hospital is a great aid to vanity. All of the doctors stop in for a "Hello." One patient across the hall saw the "No Visitors" sign on my door and said, "How absurd, and her room full of men all the time!"

I learned that I had never before appreciated the skill of a surgeon, nor the effect of a perfect bedside manner. I knew that I, and not just a patient, was the one whose hand they held during the black days, and that they were carrying me home with them in their thoughts, and even keeping informed while on vacation trips. Our doctors are that way, and it is too bad I had to get so ill before I found a voice to speak of it.

## HUMAN INTEREST TALES

Dr. Kirby McGrew has moved from Ord to Hayes Center.

Dr. R. S. Wycoff, Lexington, spent a month in New Mexico.

Dr. R. D. Sinclair has purchased the Dalton hospital property.

Dr. F. A. Burnham, Arnold, visited the Mayo clinic in September.

Dr. John Eagleton has located in Decatur to practice medicine.

Dr. H. R. Elston, Humphrey, recently had a mastoid operation done.

Dr. Duaine Doan, a native son, has located at Doniphan to practice.

Dr. and Mrs. L. B. Bushman, Omaha, recently visited in Cincinnati.

Dr. E. J. O'Brien, formerly of Exeter, has located at Colorado Springs.

Dr. L. L. Zierott, formerly of Chester, has located at Thermopolis, Wyo.

Dr. and Mrs. Fred Murtele, North Platte, spent a week in Denver, recently.

Dr. F. E. Way, Wahoo, has returned from a trip to New England coast points.

Dr. Frank Conlin. Omaha. has opened an office at 1414 Medical Arts building.

Dr. L. L. Noble, Holmesville, was recently reported to be in an Omaha hospital.

Dr. and Mrs. John Heintz of Switzerland visited relatives at Randolph recently.

Dr. and Mrs. Edwin G. Davis, Omaha, enjoyed a vacation at North Woods, Minn.

The Doctor Bald family, Platte Center, made a vacation trip through the Rockies.

Dr. Sophia Warner, for some four years at Arapahoe, has located at Portland, Oregon.

Dr. and Mrs. R. L. Hook, Lodge Pole, spent a short time at Denver and among the mountains.

Dr. and Mrs. I. C. Munger, Lincoln, have returned from a trip to Colorado places of interest.

Dr. and Mrs. Perry Allerton, former Tildenites, Elgin, Ill., visited Nebraska points recently.

Dr. D. H. Morse, for several years in practice at Hayes Center, has moved to Spokane, Wash.

Dr. Thomas C. Sexton, Fremont, retired physician, celebrated his ninety-third birthday recently.

Dr. L. S. McNiell, Campbell, spent the month of September in Philadelphia doing postgraduate work.

Dr. F. W. Vennemann, formerly of Spencer, has located in Norfolk in association with the Norfolk clinic.

Dr. Elvin Semrad, Abie physician, has gone to Boston to spend a year in study in the Boston Psychopathic hospital.

Dr. Clarence Minnick, Cambridge, visited in Boise, Ida., and incidentally attended the Idaho Medical Society meeting.

Dr. W. L. Albin, wife and daughter, Lincoln, motored 5,000 miles this summer touring New England and Quebec.

Lieutenant Commander Lincoln Humphreys, U. S. N., has been stationed at the Omaha recruiting station as medical officer.

Dr. Dewitt Lowe and family, missionaries in Korea, are visiting relatives at Pawnee City. Hastings and other places in Nebraska.

Dr. E. T. Hobbs, former Glenvil physician, has been appointed city physician of Lincoln, vice Dr. R. A. Underwood, resigned.

The marriage of Dr. R. D. Schrock, Omaha, and Miss Elizabeth Winslow Wetherbee, Newton Highlands, Mass., occurred August 20.

Dr. Nora Fairchild, for several years located at Brindabar, India, in an eye clinic, is visiting in this country. She is an Omaha product.

Dr. B. C. Pease, formerly of Lincoln, has purchased a drug store at Shelton and has taken possession. He will continue to practice medicine.

Primrose, Nebraska, a town of 220 inhabitants, is in need of a physician. A middle aged physician preferred. Local effort to assist physician to establish himself is assured.

## THE SOCIETIES

The **Madison-Six County Medical Society** held its September meeting on the 17th in the pavilion at Beemer. A chicken dinner was served before the scientific program. Seventy-seven physicians and their ladies attended. The meeting was one of intense interest.

The scientific program was put on by Dr. H. K. Gray, Mayo clinic, "The Surgical Management of Benign Lesions of the Stomach and Duodenum"; Dr. E. H. Rynearson, Mayo clinic, "The Classification and Treatment of Goiter."

Dr. E. L. Brush, councilor for the Fourth District, told of the action looking toward an executive secretary, stressed the need of such an officer and bespoke for him the united support of the members.

Moving pictures were shown—"Traumatic Surgery of the Extremities." Four reels of moving pictures from Yale University School of Medicine. "Lumbar Sympathectomy for Hirschsprung's Disease," one reel motion pictures.

## BOOKS RECEIVED

KEY TO SYMPTOMATOLOGY: Book III, Cardio-Vascular-Pulmonary Diseases. The Key System Publishers, Nebraska City, Nebr.

KEY TO SYMPTOMATOLOGY: Book IV, Gastro-Intestinal Diseases.

## TUT. TUT!

Betty Co-ed (just home from a holiday in Egypt): "And. Auntie, it was so interesting, the tombs and pyramids and things all covered with hieroglyphics."

Aunt Louisa: "Oh, dear, I do hope you didn't get any on you, child!"

# THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol. 20 Norfolk, Nebraska, November, 1935 No. 11

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REPORT OF A

# CANCER SURVEY OF NEBRASKA

Made by

FRANK LESLIE RECTOR, M. D.

Field Representative

American Society for the Control of Cancer

New York, N. Y.

CLARENCE COOK LITTLE, Sc. D.

Managing Director

## INTRODUCTION

Advancing civilization has brought in its train many problems our forbears did not have to face. Not the least of these problems is the increase in chronic and degenerative diseases. Through improved sanitation and immunization, practical control has been gained over communicable diseases and these have given place to an imposing list of degenerative diseases in which cancer holds a conspicuous place as the second cause of death.

This change in type of disease forming the major problem of professional attack has made necessary a change in methods of medical treatment and has introduced many social problems not applicable to the communicable and infectious diseases with their sudden onset, rapid course, and early termination in recovery or death. The degenerative diseases with their insidious and often symptomless onset become firmly established before they are recognized and their subsequent course, usually prolonged and incapacitating, brings to the fore many social and economic problems having a definite influence on the outcome of the case.

In keeping with these changes in medical practice, a marked change has taken place in the attitude of the medical profession toward the cancer problem. Thirty years ago little thought was given generally to early diagnosis and early treatment because cancer cases were so seldom seen and recognized in these early stages that they excited no special interest. As the problem was studied more intensively in the laboratory and clinically, it was found that many cases responded to adequate therapy and there was hope and considerable assurance that cures could be expected if patients were seen sufficiently early.

An increasing interest in research was stimulated by discovery of the therapeutic properties of Roentgen rays and radium. This opened an entirely new approach to the diagnosis and treatment of cancer. Types of malignancy formerly considered hopeless were found responsive to radiation therapy to the extent of making such patients comfortable over a much longer period than they had enjoyed previously or of curing them. This stimulated further research in fundamental biological and physical problems and such investigations are now being followed and extended widely. Laboratory investigation into etiological and related factors has advanced further than similar studies in clinical problems. The biologist, chemist, and physicist are making more significant contributions to the fundamental cause and control of cancer than is the physician; but it remains the responsibility of the physician to make the practical application of these findings to an improved service to the cancer patient.

The unknown etiology and relatively small percentage of known cures compared to the number of patients treated make cancer one of the greatest challenges to medical science today. As a result of this increased knowledge, an added interest in the whole field of malignancy is being shown by professional, scientific and lay groups.

While certain facts are known about the cancer problem in general, there is a great paucity of information about specific phases of the question. This information is lacking especially as to facilities for adequate diagnosis and treatment, where such facilities may be found, also where they are deficient . Such information can be obtained only by careful surveys of hospitals, clinic groups, and other organizations concerned with the cancer problem.

The Nebraska State Medical Association for many years has been engaged in professional and lay education in health and medical matters. During this period the problem of cancer control has demanded increasing attention until it was felt that before much further progress could be made in this direction, it would be necessary to obtain fundamental facts about the problem, the analysis of such facts when assembled to be the basis of a more adequate program of cancer control in that state.

Accordingly, at the third session of the House of Delegates of the Nebraska State Medical Association on May 25, 1933, the following action was taken:

> "A motion was made that the Nebraska State Medical Association request the American Society for the Control of Cancer to make a survey of the state of Nebraska. Seconded and carried."

In keeping with this request, the field work of this survey was carried out during the month of April, 1934, and has been conducted with almost universal cooperation of hospital executives, medical staffs, and physicians in the cities visited. Officers of the State Medical Association have given enthusiastic support to the work. The State Health Commissioner supplied the material for tables on cancer mortality incorporated in this report.

Without cooperation of the above mentioned organizations and individuals, this survey would not have been possible. It is a pleasure here to recognize and acknowledge their interest and assistance.

## METHODS OF THE SURVEY

Before the field work was begun, the followng questionnaire and covering letter were sent to all general hospitals in the state with a listed capacity of 25 beds or more, asking for information on bed capacity, equipment, methods of handling cancer patients, and statistics on their cancer experience during the year 1933.

March 1, 1934

"Upon request of the Nebraska State Medical Association, the American Society for the Control of Cancer is undertaking a survey of the hospital and medical facilities in that state for the diagnosis and treatment of cancer.

"This survey will bring together for the first time in Nebraska information on existing facilities for the diagnosis and treatment of cancer in its various forms, and should prove of benefit alike to the general community and those primarily interested in this disease. From the data assembled, a report will be prepared for the medical society with recommendations.

"To make this survey as valuable and comprehensive as possible, your cooperation is earnestly requested. The enclosed questionnaires, one copy being for your own files, require a minimum of statistical work, the majortiy of the questions being answered by yes or no.

"It will be greatly appreciated if the completed questionnaire could be returned not later than April 1, next.

"Anticipating your cooperation in this important work, I am,

Sincerely,
F. L. Rector, M. D.,
Field Representative.

THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER
1250 Sixth Avenue, New York, N. Y.

### HOSPITAL SURVEY OF CANCER FACILITIES IN NEBRASKA

1. Name of hospital?
2. Address of hospital?
3. Superintendent's name?
4. Number of beds (excluding bassinets)?
5. Number of beds designated for cancer patients?
6. Maximum voltage of x-ray machines in kilovolts?
7. Number of milligrams of radium owned by hospital?
8. Number of milligrams of radium owned by local physicians?
9. Does hospital rent radium?
   Purchase radon?
10. Is the laboratory equipped for embedded tissue examination?
    For frozen sections?
11. Is pathologist in charge a physician?
12. Is pathologist on full or part time service?
13. If part time, how many hours daily or weekly in attendance?
14. If no laboratory, where are tissues sent for examination?
15. Is hosptial affiliated with a medical teaching institution?
16. Is there an organized tumor service?
17. Is there an organized Out-Patient Department?
18. Number of new cancer patients seen in Out-Patient Department in 1933?
19. Has hospital a social service department?
20. Is status of all cancer patients known five years after discharge?
21. Number of adult patients admitted to hospital in 1933?
22. Number of cancer* patients admitted to hospital in 1933?
23. Number of hospital deaths in 1933?
24. Number of cancer deaths in 1933?
25. Number of autopsies performed in 1933?
26. Number of cancer autopsies performed in 1933?

*All malignancies.

Signed by ..........................................................................
Official position ..................................................................
Date..............................................

With few exceptions, each hospital contributing to the survey was visited and cancer problems discussed with the superintendent and such staff members as were available. Physical equipment of the hospital, particularly surgical, laboratory, and x-ray equipment, was inspected. Some time was spent in discussing cancer problems with physicians known to be particularly interested in the work. As opportunity offered, talks were given to nurses and physicians at which time the Canti film was shown. Students in the State Teachers' Colleges at Chadron, Kearney, and Wayne, and in the two medical schools in Omaha were addressed on the life history of cancer and methods for its control. It is estimated that approximately 2,500 persons, both lay and professional, were reached in this manner. Literature of interest to physicians, nurses, and the public was distributed at these meetings.

The information and statistical material collected during this survey have been analyzed and form the body of this report.

## POPULATION STATISTICS

According to the Federal Census for 1930, Nebraska's population was 1,377,963. Of this number 486,107 or 35.3 per cent are classified as urban and 891,856 or 64.7 per cent as rural. The following table shows the population of Nebraska by decades since 1860:

TABLE 1

POPULATION OF NEBRASKA BY DECADES
1860-1930

| | Population | | | | |
|---|---|---|---|---|---|
| Year | Total | Urban | Rural | Population Per Square Mile | Percentage Increase |
| 1860 | 28,841 | ............ | ............ | ...... | ........ |
| 1870 | 122,993 | ............ | ............ | ...... | 326.5 |
| 1880 | 452,402 | ............ | ............ | ...... | 267.8 |
| 1890 | 1,062,656 | ............ | ............ | ...... | 134.9 |
| 1900 | 1,066,300 | ............ | ............ | 13.9 | .3 |
| 1910 | 1,192,214 | 310,852 | 881,362 | 15.5 | 11.8 |
| 1920 | 1,296,372 | 405,306 | 891,066 | 16.9 | 8.7 |
| 1930 | 1,377,963 | 486,107 | 891,856 | 17.9 | 6.3 |

More than 98 per cent of the population is white. According to the 1930 census 13,752, or one per cent, were negroes, and 10,509 were of other races, of whom 6,321 were Mexicans and 3,256 were Indians. Illiteracy in the state in 1930 was rated as 1.2 per cent of the population ten years of age and over.

As noted from Table 1, the population of Nebraska is predominantly rural. Omaha is the only city with more than 100,000 population and Lincoln the only city between 20,000 and 100,000 population. Six cities have a population from 10,000 to 20,000, nine from 5,000 to 10,000, and eighteen from 2,500 to 5,000 each.

The sex distribution of the population is 51.2 per cent male and 48.8 per cent female. There are 105.2 males per 100 females. In the urban population, females outnumber the males by 2 per cent while in rural areas there are 5 per cent more males. Table 2 shows the age and sex distribution of Nebraska's population according to the 1930 census.

TABLE 2

AGE AND SEX DISTRIBUTION OF NEBRASKA'S POPULATION

1930

| Age Groups | Total Population | Per Cent Total | Male Population | Male Per Cent Total | Male Per Cent Male | Female Population | Female Per Cent Total | Female Per Cent Female |
|---|---|---|---|---|---|---|---|---|
| Total | 1,377,963 | 100. | 706,348 | 51.2 | 100. | 671,615 | 48.8 | 100. |
| Under 5 | 130,337 | 9.5 | 66,742 | 4.8 | 9.4 | 63,595 | 4.6 | 9.5 |
| 5- 9 | 141,487 | 10.3 | 71,931 | 5.2 | 10.2 | 69,556 | 5.1 | 10.4 |
| 10-14 | 136,339 | 9.9 | 69,173 | 5.0 | 9.8 | 67,166 | 4.9 | 10.0 |
| 15-19 | 132,100 | 9.6 | 66,788 | 4.8 | 9.5 | 65,312 | 4.8 | 9.7 |
| 20-24 | 120,788 | 8.8 | 60,298 | 4.4 | 8.5 | 60,490 | 4.4 | 9.0 |
| 25-29 | 104,370 | 7.6 | 52,163 | 3.8 | 7.4 | 52,207 | 3.8 | 7.8 |
| 30-34 | 99,601 | 7.2 | 50,023 | 3.6 | 7.1 | 49,578 | 3.6 | 7.4 |
| 35-44 | 189,667 | 13.8 | 97,628 | 7.1 | 13.8 | 92,039 | 6.7 | 13.7 |
| 45-54 | 141,506 | 10.3 | 74,511 | 5.4 | 10.5 | 66,995 | 4.9 | 10.0 |
| 55-64 | 94,824 | 6.9 | 50,392 | 3.6 | 7.1 | 44,432 | 3.2 | 6.6 |
| 65-74 | 59,956 | 4.4 | 32,625 | 2.3 | 4.6 | 27,331 | 2.0 | 4.1 |
| 75-up | 26,238 | 1.9 | 13,641 | 1.0 | 1.9 | 12,597 | .9 | 1.9 |
| Unknown | 750 | .1 | 433 | | | 317 | | |

Comparison of Nebraska with several neighboring states on the percentage distribution of urban and rural population by sex is shown in Table 3.

TABLE 3

PERCENTAGE DISTRIBUTION OF URBAN AND RURAL POPULATION BY SEX IN CERTAIN STATES

1930

| State | Total Per Cent Male | Total Per Cent Female | Urban Per Cent Male | Urban Per Cent Female | Rural Per Cent Male | Rural Per Cent Female |
|---|---|---|---|---|---|---|
| Nebraska | 51.2 | 48.8 | 49.0 | 51.0 | 52.5 | 47.5 |
| Iowa | 50.7 | 49.3 | 48.8 | 51.2 | 52.1 | 47.9 |
| Kansas | 51.0 | 49.0 | 49.5 | 50.5 | 52.5 | 47.5 |
| Missouri | 50.2 | 49.8 | 48.7 | 51.3 | 51.8 | 48.2 |

A further analysis of the urban and rural population of Nebraska by sex and age groups, with age 30 as the dividing line, shows that the rural areas contain a larger percentage of both sexes in the younger age group than do urban areas. These differences are indicated in Table 4.

TABLE 4

PERCENTAGE DISTRIBUTION OF URBAN AN RURAL POPULATION BY SEX AND AGE GROUPS

NEBRASKA—1930

| Age | Urban Male | Urban Female | Urban Total | Rural Male | Rural Female | Rural Total | Total Male | Total Femal |
|---|---|---|---|---|---|---|---|---|
| Under 30 | 51.4 | 52.4 | 51.8 | 57.4 | 58.6 | 57.5 | 54.8 | 56. |
| Over 30 | 48.6 | 47.6 | 48.2 | 42.6 | 41.4 | 42.5 | 45.2 | 43. |

The age distribution of the population of Nebraska shows no marked differences from that of other states in this same geographic area. In keeping with the majority of other states and with the United States as a whole, the population of Nebraska is consistently becoming an older population. In the last 20 years there has been an increase of 6.8 per cent in the population age thirty and above. Based on the 1930 census, this gives an actual increase of 70,214 individuals in the higher age group in 20 years.

TABLE 5

PERCENTAGE DISTRIBUTION OF POPULATION BY AGE GROUPS

1910, 1920, 1930

| Age Group | United States 1910 | United States 1920 | United States 1930 | Nebraska 1910 | Nebraska 1920 | Nebraska 1930 |
|---|---|---|---|---|---|---|
| Under 5 | 11.6 | 10.9 | 9.3 | 11.8 | 11.0 | 9.5 |
| 5- 9 | 10.6 | 10.8 | 10.3 | 10.7 | 10.8 | 10.3 |
| 10-14 | 9.9 | 10.1 | 9.8 | 10.2 | 10.2 | 9.9 |
| 15-19 | 9.9 | 8.9 | 9.4 | 10.4 | 9.2 | 9.6 |
| 20-24 | 9.8 | 8.8 | 8.9 | 10.3 | 9.0 | 8.8 |
| 25-29 | 8.9 | 8.6 | 8.0 | 8.9 | 8.8 | 7.6 |
| 30-34 | 7.6 | 7.6 | 7.4 | 7.2 | 7.8 | 7.2 |
| 35-44 | 12.7 | 13.4 | 14.0 | 11.6 | 12.6 | 13.8 |
| 45-54 | 9.1 | 10.0 | 10.6 | 8.9 | 9.1 | 10.3 |
| 55-64 | 5.5 | 6.2 | 6.8 | 5.5 | 6.3 | 6.9 |
| 65-74 | 3.0 | 3.3 | 3.8 | 3.1 | 3.4 | 4.4 |
| 75-up | 1.1 | 1.3 | 1.6 | 1.2 | 1.5 | 1.9 |
| Unknown | .2 | .1 | .1 | .2 | .2 | .1 |
| Per Cent 30 Years and Above | 39.2 | 41.9 | 44.3 | 37.8 | 40.9 | 44.6 |

This percentage change in various age groups is again demonstrated when the age distribution for 1930 is compared to that of the standard million population familiar to statisticians. In Table 6, comparison of the 1930 population of Nebraska with the standard million distribution is shown. This comparison shows that up to age 35 the real population age grouping is below that of the standard million while the older age groups show a proportionate or larger increase.

TABLE 6

AGE DISTRIBUTION OF POPULATION OF NEBRASKA COMPARED TO STANDARD MILLION DISTRIBUTION

1930

| Age Groups | Standard Million Number | Standard Million Per Cent | Real Population Number | Real Population Per Cent |
|---|---|---|---|---|
| Under 5 | 157,088 | 11.4 | 130,906 | 9.5 |
| 5- 9 | 147,443 | 10.7 | 141,930 | 10.3 |
| 10-14 | 141,930 | 10.3 | 136,418 | 9.9 |
| 15-19 | 137,796 | 10.0 | 132,284 | 9.6 |
| 20-24 | 132,284 | 9.6 | 121,261 | 8.8 |
| 25-34 | 223,230 | 16.2 | 203,939 | 14.8 |
| 35-44 | 169,489 | 12.3 | 190,159 | 13.8 |
| 45-54 | 122,639 | 8.9 | 141,930 | 10.3 |
| 55-64 | 82,678 | 6.0 | 95,079 | 6.9 |
| 65-74 | 45,473 | 3.3 | 60,630 | 4.4 |
| 75-up | 17,913 | 1.3 | 23,427 | 2.0 |
| Total | 1,377,963 | 100.0 | 1,377,963 | 100.0 |

## CANCER STATISTICS*

Since 1927 cancer has occupied second place as a cause of death in the registration area of the United States. The following table from the Federal Census shows the mortality in the death registration area of the United States for 1932 due to the leading causes of death.

TABLE 7

PRINCIPAL CAUSES OF DEATH IN UNITED STATE REGISTRATION AREA** FOR 1932

| | Number Deaths | Death Rate |
|---|---|---|
| All deaths | 1,304,109 | 1,090.0 |
| Heart disease | 267,836 | 224.0 |
| Cancer | 122,339 | 102.2 |
| Accidents (Automobile excepted) | 117,370 | 98.0 |
| Cerebral Hemorrhage | 104,636 | 87.5 |
| Nephritis | 104,488 | 87.3 |
| Pneumonia | 92,146 | 77.0 |
| Tuberculosis | 75,398 | 63.0 |

As the general death rate throughout the country is decreasing, due mainly to decreased infant mortality and deaths from communicable disease, and as the number of deaths from cancer is increasing, the percentage of all deaths represented by cancer is increasing throughout the United States, as shown by Table 8.

TABLE 8

CANCER DEATHS IN REGISTRATION AREA AND PERCENTAGE OF ALL DEATHS REPRESENTED BY CANCER

1920-1932

| Year | Number of Cancer Deaths | Percentage of All Deaths |
|---|---|---|
| 1920 | 71,756 | 6.4 |
| 1921 | 75,113 | 7.4 |
| 1922 | 78,355 | 7.5 |
| 1923 | 81,505 | 7.3 |
| 1924 | 85,241 | 7.9 |
| 1925 | 88,623 | 8.0 |
| 1926 | 92,500 | 7.9 |
| 1927 | 95,103 | 8.6 |
| 1928 | 99,000 | 8.3 |
| 1929 | 111,562 | 8.0 |
| 1930 | 115,265 | 8.6 |
| 1931 | 117,790 | 8.9 |
| 1932 | 112,339 | 9.4 |

Heart disease and cancer are two diseases showing marked increase in deaths and death rates throughout the United States. While some other diseases, notably diabetes, are also showing a rapid increase in death rate, the total number of deaths from these diseases is but a fraction of those from heart disease and cancer. There is a slight increase in the death rate from nephritis and a marked decrease in the rates for pneumonia and tuberculosis. Table 9 shows these rates for the registration area of the United States for the period 1923 to 1932, inclusive.

In keeping with experience in other states and other countries, the number of cancer deaths in Nebraska has shown a steady and marked increase, much greater than the increase either in the population as a whole or in that portion of the population age thirty and above. In 1920 the cancer death rate in Nebraska was 75.4 per 100,000. In 1932 it was 102.5 per 100,000. During the decade 1920-1930 there was an increase in total population of 6.3 per cent and an increase of 3.7 per cent in the population thirty years of age and over. During this same decade cancer deaths increased 47 per cent and the cancer death rate increased 38.3 per cent. It is thus seen that the cancer death rate increased more than six times as much as did the total population during this period and more than ten times as much as did that portion of the population age thirty and over

TABLE 9

DEATH RATE FOR CANCER AND OTHER LEADING CAUSES OF DEATH PER 100,000 POPULATION—UNITED STATE REGISTRATION AREA

1923-1932

| Disease | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 |
|---|---|---|---|---|---|---|---|---|---|---|
| Heart Disease | 175.3 | 178.1 | 185.5 | 199.1 | 195.7 | 208.3 | 210.9 | 213.5 | 213.0 | 224.0 |
| Cancer | 89.4 | 91.9 | 92.6 | 94.9 | 95.6 | 96.1 | 95.9 | 97.2 | 99.1 | 102.2 |
| Nephritis | 90.1 | 89.6 | 96.4 | 98.3 | 92.4 | 95.3 | 91.2 | 90.8 | 87.3 | 87.3 |
| Cerebral Hemorrhage | 90.5 | 92.7 | 84.4 | 86.3 | 84.0 | 87.2 | 86.1 | 84.9 | 86.7 | 87.5 |
| Pneumonia | 109.0 | 98.2 | 93.5 | 102.5 | 80.6 | 98.2 | 91.7 | 83.2 | 81.3 | 77.0 |
| Tuberculosis | 93.5 | 90.4 | 86.6 | 87.1 | 80.8 | 79.4 | 76.0 | 71.5 | 68.4 | 63.0 |

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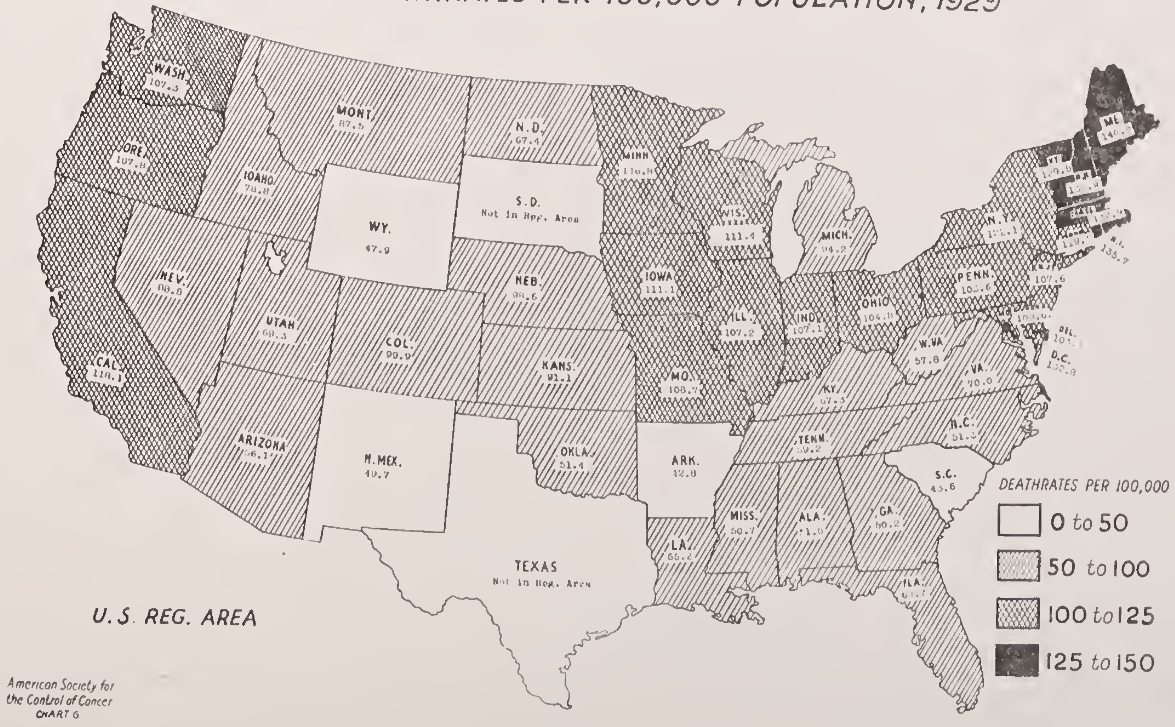
*The term "cancer" as used in this report includes all forms of malignancy.

**Includes 96.3 per cent of total population.

## CANCER AND OTHER MALIGNANT TUMORS

CRUDE DEATHRATES PER 100,000 POPULATION, 1929



American Society for the Control of Cancer CHART 6 during this same period. In Table 10 are shown these death rates in comparison with those of the United States registration area.

TABLE 10

TOTAL DEATHS, CANCER DEATHS, DEATH RATES AND PERCENTAGE OF ALL DEATHS REPRESENTED BY CANCER
NEBRASKA—1920-1932

| Year | Total Number Deaths | Cancer Deaths | Per Cent Cancer Deaths | Cancer Death Rate Nebraska | Cancer Death Rate U. S. Registration Area |
|---|---|---|---|---|---|
| 1920 | 13,755 | 978 | 7.1 | 75.4 | 83.4 |
| 1921 | 12,025 | 1,068 | 8.9 | 80.7 | 86.0 |
| 1922 | 12,452 | 1.127 | 9.0 | 85.2 | 86.8 |
| 1923 | 12,621 | 1,046 | 8.3 | 78.4 | 89.4 |
| 1924 | 12,389 | 1,076 | 8.6 | 80.0 | 91.9 |
| 1925 | 12,475 | 1.196 | 9.6 | 88.2 | 92.6 |
| 1926 | 12,646 | 1.198 | 9.4 | 86.6 | 94.9 |
| 1927 | 12,369 | 1,257 | 10.1 | 90.4 | 95.6 |
| 1928 | 13,662 | 1,327 | 9.7 | 94.2 | 96.1 |
| 1929 | 13,374 | 1.347 | 10.0 | 94.9 | 96.0 |
| 1930 | 13,280 | 1,438 | 10.8 | 104.3 | 97.2 |
| 1931 | 12,905 | 1,420 | 11.0 | 102.6 | 99.1 |
| 1932 | 12,923 | 1,424 | 10.9 | 102.5 | 102.2 |

Rates noted in the preceding table are crude rates. Adjusted rates show but slight change, and for purposes of this survey are not so significant as are the crude rates which show a more accurate picture of the number of cancer patients treated in the community. Although some of these patients may reside outside Nebraska, the professional and hospital facilities of the state are called upon for treatment and such cases properly form part of the load carried by the cancer treatment facilities of the state.

While the general death rate has declined during the period covered by the preceding table, a marked rise has taken place in both the number of deaths and the death rate from malignant diseases.

These statistics would indicate an increase in the incidence of cancer independent of the increasing percentage of the population now found in the older age groups and of other factors which may influence the situation.

The concensus of opinion of those best entitled to speak with authority on this question is that there is a definite increase in the incidence of cancer. This question was discussed by the Bureau of the Census on page 80 of its report "Mortality Rates 1910-1920."

> "The contention that cancer is not actually, but only apparently, increasing seems no longer tenable. Better diagnoses undoubtedly account for part of the increase shown, but not for all of it. Figures from England and Wales, compiled by Dr. T. H. C. Stevenson, and published by the Registrar-General's report for 1917, clearly established an actual increase in mortality from cancer of accessible sites and our own figures presented in 1920 Mortality Statistics confirmed Dr. Stevenson's findings. For example, for females in the registration states of 1900, the 1900 adjusted death rate from cancer of the breast per 100,000 population female was 9.2 and the 1920 adjusted rate was 16.9, an increase of 84 per cent. For a site so accessible it is inconceivable that the difference in the above rates could possibly be due to difference in diagnostic power."

Figures for cancer of the buccal cavity, similar to those quoted above for cancer of the breast, show that in 1900 in the United States registration area the death rate for buccal cancer was 1.6 per 100,000. By 1910 this had increased to 3.1 and by 1930 to 3.9. Cancer of the buccal cavity always has been easily accessible and the increase noted cannot be explained entirely on the basis of improved diagnosis.

Table 11, showing cancer deaths by sex and site of lesion in Nebraska in 1932, indicates the important place held by cancer in the digestive tract and peritoneum, 57.2 per cent of all cancer deaths in that year being reported from this region.

TABLE 11

CANCER DEATHS BY SEX AND SITE OF LESION
NEBRASKA, 1932

| | Cancer Deaths Male | Cancer Deaths Female | Cancer Deaths Total | Per Cent of Total |
|---|---|---|---|---|
| All forms | 682 | 742 | 1,424 | 100.0 |
| Buccal cavity and pharynx | 42 | 5 | 47 | 3.3 |
| Digestive tract and peritoneum | 439 | 375 | 814 | 57.2 |
| Respiratory system | 27 | 13 | 40 | 2.8 |
| Uterus | — | 130 | 130 | 9.1 |
| Other female generative organs | — | 29 | 29 | 2.1 |
| Breast | — | 125 | 125 | 8.8 |
| Male genito-urinary organs | 102 | — | 102 | 7.2 |
| Skin | 10 | 8 | 18 | 1.2 |
| Other or unspecified organs | 62 | 57 | 119 | 8.3 |

Analysis of statistics of the twenty leading causes of death in Nebraska in 1932 shows that

TABLE 12

TWENTY PRINCIPAL CAUSES OF DEATH IN NEBRASKA, 1932

| Cause | Number Deaths |
|---|---|
| Diseases of the heart | 1,926 |
| Cancer (all forms) | 1,424 |
| Cerebral hemorrhage, apoplexy | 1,296 |
| Nephritis (acute and chronic) | 1,014 |
| Pneumonia (all forms) | 869 |
| Accidental deaths | 688 |
| Influenza (all forms) | 524 |
| Premature birth | 379 |
| Diabetes mellitus | 321 |
| Tuberculosis (all forms) | 280 |
| Suicides (all forms) | 278 |
| Appendicitis | 250 |
| Other circulatory diseases | 248 |
| Angina pectoris | 228 |
| Arteriosclerosis | 204 |
| Automobile accidents | 198 |
| Hernia and intestinal obstruction | 147 |
| Senility | 144 |
| Diarrhea and enteritis | 136 |
| The puerperal state | 127 |
| Total | 10,681 |

cancer was exceeded only by heart disease. Cancer caused 13.3 per cent of deaths due to the twenty leading causes of death and accounted for more than five times as many deaths as did tuberculosis. Cancer caused eleven per cent of all deaths in Nebraska in 1932. There was a death from cancer in Nebraska every 6 hours and 10 minutes during that year.

Table 13 lists the deaths from reportable diseases in Nebraska during the five year period 1928-1932, inclusive. During this period the number of cancer deaths each year varied from 50 to 80 per cent of total deaths from the seventeen reportable diseases; and for the full five year period, the number of cancer deaths was 65.4 per cent of all deaths in this group.

TABLE 13

DEATHS FROM REPORTABLE DISEASES AND CANCER—NEBRASKA, 1928-1932

| Disease | 1928 | 1929 | 1930 | 1931 | 1932 | Total Five Years |
|---|---|---|---|---|---|---|
| Pneumonia (all forms) | 1,061 | 857 | 929 | 804 | 869 | 4.520 |
| Influenza (all forms) | 887 | 642 | 253 | 311 | 524 | 2,617 |
| Tuberculosis (all forms) | 357 | 425 | 348 | 355 | 280 | 1,765 |
| Syphilis | 65 | 66 | 70 | 73 | 52 | 326 |
| Diphtheria | 51 | 48 | 47 | 48 | 45 | 239 |
| Whooping cough | 41 | 56 | 41 | 58 | 28 | 224 |
| Scarlet fever | 40 | 53 | 31 | 22 | 28 | 174 |
| Erysipelas | 38 | 48 | 39 | 20 | 17 | 162 |
| Measles | 10 | 33 | 86 | 4 | 2 | 135 |
| Meningococcus meningitis | 21 | 38 | 38 | 22 | 7 | 126 |
| Typhoid and paratyphoid fever | 23 | 25 | 23 | 24 | 17 | 112 |
| Poliomyelitis, acute | 10 | 8 | 48 | 15 | 13 | 94 |
| Gonococcus infection | 16 | 23 | 14 | 8 | 6 | 67 |
| Lethargic encephalitis | 11 | 11 | 8 | 4 | 8 | 42 |
| Smallpox | .... | 7 | 7 | 2 | 1 | 17 |
| Malaria | .... | 6 | .... | 3 | .... | 9 |
| Undulant fever | .... | 1 | .... | 4 | 1 | 6 |
| Total | 2,631 | 2,347 | 1,982 | 1,777 | 1,898 | 10,635 |
| CANCER | 1.327 | 1,347 | 1,438 | 1,420 | 1,424 | 6,956 |
| Per cent of all deaths represented by Cancer | 50.4 | 57.4 | 72.5 | 80.0 | 75.0 | 65.4 |

While in some instances the major activities of official health agencies may now lie in the fields of maternity, infancy and child hygiene, and venereal disease, they still have a profound responsibility toward prevention and control of communicable diseases. In the majority of cases this need was the reason for creation of official health agencies and other duties were added as communicable diseases become better controlled. From Table 13 it is noted that during the past five years deaths from cancer average well up with combined deaths from all reportable diseases in Nebraska. Occurrence of a comparatively few cases of any of these diseases at once sets in motion all the power and authority of health departments for their control. The help of state and national organizations is enlisted, and if necessary emergency funds are requested with which to hold the disease in check. For example, the intense activity of official health agencies in the face of epidemics of poliomyelitis and encephalitis, in which there may be a few hundred cases with a few score deaths, only serves to bring out in marked contrast the lack of interest of such agencies in the cancer problem which takes a much greater toll of life and physical incapacity throughout the jurisdictions of all health departments.

This statement is made not in criticism of activities directed effectively toward the control of common epidemic diseases which would cause much suffering and some loss of life, if they assumed epidemic proportions, but rather to emphasize the importance of cancer as a lethal disease and as a heavy drain on the social and economic life of the community. The effective control of communicable diseases by the official health agencies in Nebraska is attested by the small number of deaths from these diseases listed in Table 13. The feeling of hopelessness about cancer which has so long pervaded all classes of society doubtless has had more to do with the neglect of this question by official health agencies than has the indifference and lack of interest of such organizations and their responsible officers.

The contribution which official health agencies can make toward the control of cancer rests on their ability to bring to the public known facts about the preventability and curability of the disease. The significance of conditions now recognized as precancerous and the importance of early signs and symptoms might well be stressed in health department publications and in official utterances by their personnel.

Measures so far developed for controlling cancer equal in no degree those found effective against the common communicable diseases. The unknown etiolgy of cancer furnishes the major reason for this lack of control, although enough is now known about the hopefulness of early and adequate treatment to make it unnecessary to wait for more specific information as to etiology before making an effective contribution to a control program.

The cancer problem has not yet been dramatized sufficiently to bring it to the attention of the community and to arouse much sentimental appeal in the public mind. Nevertheless, there should be a strong public appeal in behalf of cancer sufferers, regardless of their age, in addition to the weighty economic problems involved. Cancer of bone is found primarily in children and is usually of a painful and fatal type, at best resulting in amputation with permanent disability. In adults cancer too often strikes at the most productive period of life when physical and mental efficiency are at their peak. No age is immune, and suffering from this disease, especially in its later stages, is so appalling that practical measures for its control should merit the sympathetic cooperation of all classes of society.

### COUNTY DISTRIBUTION

In the last analysis prevention and control of cancer devolve in large measure upon communities in which cancer patients live. The medical profession should have at its command the latest and most definite information on community aspects of the problem in order to formulate its program of cancer activities. Should the time come when state and local governments take an active part in this work, it would be necessary to have available to communities fairly definite information on the problem.

Table 14 shows some important facts about cancer in Nebraska based on the county as a unit. In this table the population figures are those of the 1930 Federal Census, while the number of cancer deaths and licensed physicians refer to the year 1932. It is realized that these two sets of figures are not exactly comparable, but when applied to counties they give a quite accurate picture of the situation. The number of living cancer patients has been estimated at three for each death; and as the number of licensed physicians approximates the number of cancer deaths, this calculation gives an average of three cancer patients per physician at any given time. It is interesting to note that in eight counties cancer deaths and physicians were equal in number; in seven more counties, there was one more cancer death than physician; in ten additional counties there was one more physician than cancer death; while in fifteen other counties, there was a difference of but two between the number of physicians and the number of cancer deaths during 1932. This gives a total of forty counties, or 43 per cent of all counties in the state, in which there was a difference of not more than two between the number of physicians and the number of cancer deaths.

TABLE 14

POPULATION, CANCER DEATHS
NUMBER LICENSED PHYSICIANS, AND RATIO
TO POPULATION—NEBRASKA, 1932

| County | Population 1930 | Per Cent Population 30 and Over | Number Cancer Deaths, 1932 | Number Living Cases**, 1932 | Number Licensed Physicians, 1932 | Ratio Population to Physicians |
|---|---|---|---|---|---|---|
| Adams | 26,275 | 48.0 | 27 | 81 | 38 | 690 |
| *Antelope | 15,206 | 41.6 | 20 | 60 | 11 | 1,382 |
| *Arthur | 1,344 | 36.3 | .... | .... | .... | .... |
| *Banner | 1,676 | 37.3 | .... | .... | .... | .... |
| *Blaine | 1,584 | 41.1 | 1 | 3 | 1 | 1,584 |
| *Boone | 14,738 | 40.8 | 11 | 33 | 11 | 1,340 |
| Box Butte | 11,861 | 42.1 | 16 | 48 | 17 | 700 |
| *Boyd | 7,169 | 39.7 | 7 | 21 | 8 | 896 |
| *Brown | 5,772 | 43.3 | 6 | 18 | 5 | 1,155 |
| Buffalo | 24,338 | 45.4 | 20 | 60 | 26 | 930 |
| *Burt | 13,062 | 45.0 | 13 | 39 | 15 | 870 |
| *Butler | 14,410 | 43.7 | 10 | 30 | 17 | 850 |
| *Cass | 17,684 | 47.0 | 15 | 45 | 20 | 885 |
| *Cedar | 16,427 | 39.4 | 7 | 21 | 11 | 1,495 |
| *Chase | 5,484 | 39.0 | 4 | 12 | 5 | 1,095 |
| *Cherry | 10,898 | 39.8 | 4 | 12 | 11 | 990 |
| *Cheyenne | 10,187 | 40.4 | 5 | 15 | 10 | 1,020 |
| *Clay | 13,571 | 47.4 | 16 | 48 | 15 | 900 |
| *Colfax | 11,434 | 44.3 | 17 | 51 | 10 | 1,145 |
| *Cuming | 14,327 | 41.7 | 13 | 39 | 12 | 1,195 |
| Custer | 26,189 | 41.6 | 23 | 69 | 25 | 1,045 |
| *Dakota | 9,505 | 41.6 | 6 | 18 | 4 | 2,375 |
| Dawes | 11,493 | 43.1 | 11 | 33 | 12 | 960 |
| *Dawson | 17,875 | 42.7 | 16 | 48 | 23 | 775 |
| *Deuel | 3,992 | 40.0 | 2 | 6 | 5 | 800 |
| *Dixon | 11,586 | 42.4 | 6 | 18 | 13 | 890 |
| *Dodge | 25,273 | 47.2 | 33 | 99 | 28 | 900 |
| Douglas | 232,982 | 48.4 | 301 | 903 | 388 | 600 |
| *Dundy | 5,610 | 37.0 | 5 | 15 | 2 | 2,805 |
| *Fillmore | 12,971 | 45.6 | 11 | 33 | 13 | 1,000 |
| *Franklin | 9,094 | 44.2 | 13 | 39 | 10 | 910 |
| *Frontier | 8,114 | 41.6 | 12 | 36 | 4 | 2,030 |
| *Furnas | 12,140 | 44.6 | 9 | 27 | 14 | 865 |
| Gage | 30,242 | 45.4 | 28 | 84 | 36 | 840 |
| *Garden | 5,099 | 38.6 | 2 | 6 | 4 | 1,275 |
| *Garfield | 3,207 | 42.6 | 2 | 6 | 3 | 1,070 |
| *Gosper | 4,287 | 40.0 | 4 | 12 | 1 | 4,287 |
| *Grant | 1,427 | 40.2 | 1 | 3 | 1 | 1,425 |
| *Greeley | 8,442 | 39.5 | 6 | 18 | 8 | 1,055 |
| Hall | 27,117 | 46.0 | 45 | 135 | 31 | 875 |
| *Hamilton | 12,159 | 45.0 | 15 | 45 | 8 | 1,520 |
| *Harlan | 8,957 | 43.3 | 8 | 24 | 6 | 1,490 |
| *Hayes | 3,603 | 36.3 | 4 | 12 | 1 | 3,600 |
| *Hitchcock | 7,269 | 40.1 | 7 | 21 | 7 | 1,040 |
| *Holt | 16,509 | 41.4 | 9 | 27 | 13 | 1,270 |
| *Hooker | 1,180 | 41.6 | .... | .... | 2 | 590 |
| *Howard | 10,020 | 42.4 | 9 | 27 | 6 | 1,670 |
| *Jefferson | 16,409 | 45.1 | 10 | 30 | 18 | 910 |
| *Johnson | 9,157 | 45.0 | 10 | 30 | 13 | 700 |
| *Kearney | 8,094 | 46.6 | 9 | 27 | 8 | 1,010 |
| *Keith | 6,721 | 40.0 | 3 | 9 | 4 | 1,680 |
| *Keyapaha | 3,203 | 38.8 | .... | .... | 2 | 1,600 |
| *Kimball | 4,675 | 39.3 | 2 | 6 | 5 | 935 |
| *Knox | 19,110 | 41.0 | 18 | 54 | 14 | 1,365 |
| Lancaster | 100,324 | 48.1 | 142 | 426 | 159 | 630 |
| *Lincoln | 25,627 | 40.8 | 19 | 57 | 24 | 1,065 |
| *Logan | 2,014 | 38.7 | .... | .... | 1 | 2,015 |
| *Loup | 1,818 | 38.4 | .... | .... | .... | ........ |
| *McPherson | 1,358 | 39.6 | .... | .... | 1 | 1,360 |
| Madison | 26,037 | 46.2 | 31 | 93 | 35 | 745 |
| *Merrick | 10,619 | 44.7 | 11 | 33 | 13 | 815 |
| *Morrill | 9,950 | 36.0 | 8 | 24 | 8 | 1,245 |
| *Nance | 8,718 | 41.4 | 9 | 27 | 7 | 1,245 |
| *Nemaha | 12,356 | 46.6 | 16 | 48 | 17 | 725 |
| *Nuckolls | 12,629 | 43.3 | 13 | 39 | 13 | 970 |

TABLE 14—(Continued)

| County | Population 1930 | Per Cent Population 30 and Over | Number Cancer Deaths, 1932 | Number Living Cases**, 1932 | Number Licensed Physicians, 1932 | Ratio Population to Physicians |
|---|---|---|---|---|---|---|
| Otoe | 19.901 | 45.7 | 22 | 66 | 22 | 905 |
| Pawnee | 9,423 | 46.0 | 7 | 21 | 9 | 1,045 |
| *Perkins | 5.834 | 38.3 | 1 | 3 | 3 | 1,945 |
| *Phelps | 9,261 | 49.1 | 7 | 21 | 10 | 925 |
| *Pierce | 11,080 | 40.3 | 6 | 18 | 9 | 1,230 |
| Platte | 21,181 | 40.5 | 23 | 69 | 24 | 880 |
| *Polk | 10,092 | 45.6 | 7 | 21 | 10 | 1,010 |
| Red Willow | 13.859 | 41.7 | 16 | 48 | 19 | 730 |
| Richardson | 19,826 | 46.3 | 21 | 63 | 26 | 760 |
| *Rock | 3,366 | 40.0 | 1 | 3 | 1 | 3,365 |
| *Saline | 16,356 | 48.1 | 23 | 69 | 21 | 780 |
| *Sarpy | 10,402 | 44.2 | 4 | 12 | 6 | 1,735 |
| *Saunders | 20,167 | 45.8 | 30 | 90 | 21 | 960 |
| Scotts Bluff | 28.644 | 36.4 | 27 | 81 | 34 | 840 |
| *Seward | 15,938 | 45.2 | 18 | 54 | 20 | 795 |
| *Sheridan | 10,793 | 41.3 | 7 | 21 | 10 | 1,080 |
| *Sherman | 9,122 | 40.1 | 4 | 12 | 8 | 1,140 |
| *Sioux | 4,667 | 37.3 | 1 | 3 | 2 | 2,330 |
| *Stanton | 7,809 | 40.6 | 8 | 24 | 4 | 1,950 |
| *Thayer | 13,684 | 44.0 | 18 | 54 | 17 | 805 |
| *Thomas | 1,510 | 41.6 | 1 | 3 | 2 | 705 |
| *Thurston | 10,462 | 39.3 | 11 | 33 | 6 | 1,745 |
| *Valley | 9,533 | 42.0 | 6 | 18 | 11 | 865 |
| *Washington | 12,095 | 46.0 | 11 | 33 | 10 | 1,210 |
| *Wayne | 10,566 | 42.5 | 13 | 39 | 9 | 1,175 |
| *Webster | 10,210 | 45.2 | 10 | 30 | 9 | 1,135 |
| *Wheeler | 2,335 | 35.3 | 1 | 3 | 2 | 1,165 |
| York | 17,239 | 45.2 | 19 | 57 | 20 | 860 |
| Total | 1,377,963 | 44.6 | 1,424 | 4,272 | 1,598 | 862 |

*Counties without hospitals of 25 beds or more.

**Estimated at three for each death.

### HOSPITAL CANCER CASES

Twenty-eight hospitals in Nebraska with a bed capacity of 3,204 are reported on in this survey. Of this number, 14 were of 100 beds or more capacity. They were distributed among 14 counties and all but two were visited during the survey. Those not visited, because of their small bed capacity and the small number of cancer patients reported, were:

Broken Bow, Broken Bow.
Pawnee, Pawnee City.

Six other hospitals visited in the course of the field work did not submit the information requested. Because of this, it has been impossible to consider them further. These hospitals are:

Good Samaritan, Columbus.
St. Mary's, Columbus.
Green Gables, Lincoln.
St. Catherine of Sienna, McCook.
Lutheran, Norfolk.
Verges Sanitarium, Norfolk.

The number of adult patients admitted in 1933 to the 28 hospitals was 41,213, of which 1,355, or 3.2 per cent, were for cancer. The largest percentage of cancer patients in any one hospital was 8.3 and the smallest .1.

It is seen that in the average general hospital in Nebraska the number of cancer patients at any one time forms but a small percentage of total adult admissions. The small number of cancer patients, however, does not indicate their relative importance in the work of the hospital for the reason that, potentially at least, treatment received by those patients determines to a large extent the death rate from this disease. The statement just made can and will become an actuality when cancer patients are seen sufficiently early for adequate treatment to play a large part in their recovery and future health.

That cancer patients are being admitted to hospitals in late stages of the disease in the majority of cases is emphasized by the high mortality among these patients compared to deaths from all admissions. In the hospitals reporting in this survey, 13.5 per cent of cancer patients died in the hospital while deaths from all admissions were but 5.3 per cent. It is interesting to note that but 12.9 per cent of cancer deaths in Nebraska in 1933 took place in hospitals.

Table 15 gives detailed information on admissions, deaths, and autopsies reported by the hospitals of Nebraska in this survey. This table indicates that on the basis of three living cases for each death, not more than 31.7 per cent of cancer patients in Nebraska in 1933 received hospital care. Of course, cancer patients are seen in smaller hospitals not included in this survey, but their number is so few that it would not materially affect the total number of hospital cases recorded herein. It would be interesting to know definitely how the remaining 65 per cent or more of these fatal cases were treated. A number are known to drift into the hands of quacks and charlatans who promise definite cures; others doubtless delay to seek or refuse treatment until they are hopelessly incurable. Another group of ambulatory patients is treated in physicians' offices. The determination of methods of treatment or lack of treatment of this group as a whole would doubtless prove a worthwhile study for the medical profession in Nebraska.

### TABLE 15

### BED CAPACITY, PATIENTS, DEATHS, AND AUTOPSIES IN CERTAIN NEBRASKA HOSPITALS

1933

| | | | | Patients | | | Deaths | | | | Autopsies | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hospital | City | Bed Capacity | Cancer | Total Number | Cancer | Per Cent Cancer | Total | Per Cent All Admissions | Cancer | Per Cent Cancer Admissions | Total | Per Cent Deaths | Cancer | % Cancer Deaths |
| *St. Joseph's | Alliance | 100 | .... | 999 | 16 | 1.6 | 45 | 4.5 | 6 | 37.5 | 3 | 6.6 | 1 | 16.6 |
| Beatrice Sanitarium | Beatrice | 25 | .... | 193 | 2 | 1.0 | 13 | 6.7 | 0 | ...... | 0 | ...... | 0 | ...... |
| *Lutheran | Beatrice | 65 | .... | 518 | 2 | .4 | 20 | 3.8 | 0 | ...... | 0 | ...... | 0 | ...... |
| Mennonite Deaconess | Beatrice | 30 | .... | 555 | 3 | .5 | 33 | 5.9 | 1 | 33.0 | 0 | ...... | 0 | ...... |
| Broken Bow | Broken Bow | 35 | .... | 250 | 20 | 8.0 | 14 | 5.6 | 1 | 20.0 | 0 | ...... | 0 | ...... |
| Chadron Municipal | Chadron | 25 | .... | 242 | 2 | .8 | 10 | 4.1 | 0 | ...... | 2 | 20.0 | 0 | ...... |
| *Falls City | Falls City | 35 | .... | 295 | 11 | 3.7 | 25 | 8.5 | 1 | 9.0 | 1 | 4.0 | 0 | ...... |
| x*St. Francis | Grand Island | 125 | .... | 1,210 | 44 | 3.6 | 115 | 9.5 | 10 | 22.7 | 16 | 14.0 | 4 | 40.0 |
| *Mary Lanning Memorial | Hastings | 85 | .... | 1,410 | 49 | 3.4 | 76 | 5.3 | 4 | 8.1 | 3 | 4.0 | 1 | 25.0 |
| Good Samaritan | Kearney | 60 | .... | 723 | 15 | 2.0 | 55 | 7.6 | 3 | 20.0 | 0 | ...... | 0 | ...... |
| *Bryan Memorial | Lincoln | 100 | .... | 1,177 | 40 | 3.4 | 94 | 8.0 | 8 | 20.0 | 37 | 40.0 | 8 | 100.0 |
| x*Lincoln General | Lincoln | 169 | 45 | 2,227 | 109 | 4.8 | 108 | 4.8 | 15 | 14.5 | 49 | 45.4 | 8 | 53.3 |
| x*St. Elizabeth's | Lincoln | 175 | .... | 2,798 | 47 | 1.6 | 134 | 4.8 | 13 | 28.0 | 31 | 23.1 | 2 | 15.4 |
| St. Mary's | Nebraska City | 35 | .... | 756 | No data | | 24 | 3.2 | No data | | No data | | | |
| x*Bishop Clarkson Memorial | Omaha | 100 | .... | 1,499 | 55 | 3.6 | 55 | 3.6 | 5 | 9.0 | 18 | 32.7 | 3 | 60.0 |
| x*Creighton Mem. St. Joseph's | Omaha | 400 | .... | 4,348 | 144 | 3.3 | 218 | 5.0 | 18 | 12.5 | 96 | 44.0 | 13 | 72.2 |
| x*Douglas County | Omaha | 418 | .... | 3,149 | 44 | 1.4 | 331 | 10.5 | 16 | 36.3 | 195 | 58.9 | No data | |
| x*Evangelical Covenant | Omaha | 81 | .... | 1,736 | 55 | 3.2 | 74 | 4.2 | 6 | 10.9 | 14 | 19.0 | 6 | 100.0 |
| x*Immanuel | Omaha | 125 | .... | 2,292 | 144 | 6.3 | 83 | 3.6 | 14 | 9.7 | 29 | 35.0 | 5 | 35.7 |
| Lord Lister | Omaha | 140 | .... | 1,816 | 97 | 5.3 | 99 | 5.4 | 14 | 14.4 | 31 | 30.0 | 9 | 64.3 |
| Lutheran | Omaha | 120 | .... | 1,558 | 49 | 3.1 | 55 | 3.5 | 1 | 2.0 | 14 | 25.5 | 1 | 100.0 |
| x*Nebraska Methodist Episcopal | Omaha | 175 | .... | 2,446 | 81 | 3.3 | 112 | 4.5 | 11 | 13.6 | 30 | 26.8 | 1 | 9.0 |
| Nicholas Senn | Omaha | 80 | .... | 1,200 | 100 | 8.3 | 58 | 4.8 | 3 | 3.0 | 30 | 51.7 | 3 | 100.0 |
| x*St. Catherine's | Omaha | 161 | .... | 2,889 | 44 | 1.5 | 121 | 4.2 | 8 | 18.0 | 16 | 13.2 | 1 | 12.5 |
| x*University of Nebraska | Omaha | 200 | .... | 3,331 | 165 | 5.0 | 134 | 4.0 | 15 | 9.0 | 88 | 65.6 | 13 | 86.6 |
| Pawnee | Pawnee City | 30 | .... | ....... | 6 | .... | 19 | .... | 4 | 66.0 | 2 | 10.0 | 2 | 50.0 |
| **West Nebr. Methodist Episcopal | Scottsbluff | 60 | .... | 1,100 | 1 | .1 | 29 | 2.6 | 1 | 100.0 | 0 | ...... | 0 | ...... |
| Lutheran | York | 50 | .... | 496 | 10 | 2.0 | 37 | 7.4 | 6 | 60.0 | 1 | 2.7 | 1 | 16.6 |
| TOTAL | | 3,204 | 45 | 41,213 | 1,355 | 3.2 | 2,191 | 5.3 | 184 | 13.5 | 706 | 32.2 | 82 | 44.5 |

x Approved for interne training by American Medical Association.
* Approved by American College of Surgeons.
** Provisionally approved by American College of Surgeons.

## CANCER TREATMENT FACILITIES IN NEBRASKA

### HOSPITALS

Of the 28 hospitals reported on in this survey, eleven are approved for interne training by the American Medical Association. Eleven are not approved and one is provisionally approved by the American College of Surgeons.

No hospital in Nebraska is devoted exclusively to cancer and allied diseases. All general hospitals of the state accept cancer patients. Many of the smaller institutions see but few cancer patients and the only facilities available for cancer therapy in many of these hospitals are surgical in character.

The hospitals contributing to this survey are located in 14 counties. There were 75 counties in Nebraska at the time this survey was made without hospitals of 25 beds or more. Approximately 52 per cent of the population lives in these counties, 44.6 per cent of the cancer deaths in 1933 were reported from them, and 41.6 per cent of the physicians of the state reside in them.

From the distribution of hospitals noted above and from the information in Table 16 relative to facilities for diagnosis and treatment of malignant disease, it is seen that the development of special tumor services should be confined to a few centers in the state where facilities and experienced personnel are found. Information as to facilities for diagnosis and treatment of cancer in hospitals reporting in this survey has been summarized in Table 16.

## TABLE 16

## CANCER TREATMENT FACILITIES IN CERTAIN NEBRASKA HOSPITALS

### 1934

| Hospital | City | Bed Capacity | Deep Therapy. in kv. | Mg. Radium Owned by Hospital | Mg. Radium Owned by Physician | Laboratory |  | Pathologist |  | Out-Patient Department | Teaching Affiliation | Social Department | Tumor Organized Service |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  | Permanent Tissue Sections | Frozen Sections | Physician | Full or Part Time |  |  |  |  |
| *St. Joseph's | Alliance | 100 | No | 0 | 0 | No | Yes | Yes | Part | No | No | No | No |
| Beatrice Sanitarium | Beatrice | 25 | No | 0 | 0 | No(1) | No | No | No | No | No | No | No |
| *Lutheran | Beatrice | 65 | No (2) | 0 | 0 | Yes | No | Yes | Part | No | No | No | No |
| Mennonite Deaconess | Beatrice | 30 | No (2) | 0 | 0 | No | No | No | No | No | No | No | No |
| Broken Bow | Broken Bow | 35 | No | 0 | 0 | No | No | No | No | No | No | No | No |
| Chadron Municipal | Chadron | 25 | No | 0 | 20 | No | No | No | No | No | No | No | No |
| *Falls City | Falls City | 35 | No | 0 | 0 | Yes | Yes | Yes | Part | No | No | No | No |
| x*St. Francis | Grand Island | 125 | No (3) | 0 | 0 | Yes | Yes | Yes | Part | No | No | No | No |
| *Mary Lanning Memorial | Hastings | 85 | No | 0 | 0 | No | No | No(4) | No | No | No | No | No |
| Good Samaritan | Kearney | 60 | 220 | 0 | 0 | No | No | No | No | No | No | No | No |
| *Bryan Memorial | Lincoln | 100 | 200 | 0 | 125 | Yes | Yes | Yes | Part | No | No | No | No |
| x*Lincoln General | Lincoln | 169 | 800 | 0 | 60 | Yes | Yes | Yes | Part | Yes | No | No | No(5) |
| x*St. Elizabeth's | Lincoln | 175 | 300 | 0 | 0 | Yes | Yes | Yes | Full | No | No | No | No |
| St. Mary's | Nebraska City | 35 | No | 0 | 0 | No | No | No(4) | No | No | No | No | No |
| x*Bishop Clarkson Memorial | Omaha | 100 | No | 0 | 480 mg. radium privately owned in Omaha | Yes | Yes | Yes | Part | No | No | No | No |
| *xCreighton Memorial St. Joseph's | Omaha | 400 | 320 | 0 |  | Yes | Yes | Yes | Full | Yes | Yes | Yes | Yes |
| x*Douglas County | Omaha | 418 | No | 0 |  | No | No | Yes(6) | Part | Yes | Yes | No | No |
| x*Evangelical Covenant | Omaha | 81 | 220 | 0 |  | Yes | Yes | Yes | Part | No | No | No | No |
| x*Immanuel | Omaha | 125 | 320 | 0 |  | Yes | Yes | Yes | Part | No | No | No | No |
| Lord Lister | Omaha | 140 | No | 50 |  | Yes | Yes | No(7) | Full | No | No | No | No |
| Lutheran | Omaha | 120 | No | 0 |  | Yes | No | Yes | Part | No | No | No | No |
| x*Nebraska Methodist Episcopal | Omaha | 175 | 240 | 0 |  | No | Yes | Yes | Part | No | No | No | No |
| Nicholas Senn | Omaha | 80 | No (8) | 110 |  | Yes | Yes | Yes | Full | No | No | No | No |
| x*St. Catherine's | Omaha | 161 | 200 | 0 |  | Yes | Yes | Yes | Part | Yes | Yes | Yes | Yes |
| x*University of Nebraska | Omaha | 200 | No | 96 |  | Yes | Yes | Yes | Full | Yes | Yes | Yes | No |
| Pawnee | Pawnee City | 30 | No | 0 | 0 | No | No | No | No | No | No | No | No |
| **West Nebr. Methodist Episcopal | Scottsbluff | 60 | No | 0 | 0 | No | No | No | No | No | No | No | No |
| Lutheran | York | 50 | No | 0 | 0 | No | No | No | No | No | No | No | No |

x Approved for interne training by American Medical Association.
* Approved by American College of Surgeons.
** Provisionally approved by American College of Surgeons.
(1) Selected tissues to Laboratory of Clinical Pathology, Omaha.
(2) 185 kvp. x-ray available locally.
(3) 180 kvp. x-ray available locally.
(4) All tissues to Dr. C. B. Russum, Omaha.
(5) Tumor clinic being organized when visited during survey.
(6) All tissues examined at either St. Joseph's or University of Nebraska hospitals.
(7) A third year medical student.
(8) X-ray equipment of 180 kvp. capacity.

### X-RAY EQUIPMENT

Nine hospitals in Nebraska are equipped with x-ray apparatus of 200,000 volts or more, the voltage considered essential by the American College of Surgeons for acceptable cancer therapy and also recommended by those having the most experience in the use of deep therapy for treatment of malignant disease. In some communities having no deep therapy in the hospital, it is available in the office of local physicians. In other hospitals without deep therapy, patients needing such treatment are referred to institutions where such facilities are available, or to physicians with equipment and training in this form of therapy.

In Lincoln General Hospital, Lincoln, there is x-ray equipment of 800,000 volts capacity. This is one of seven such installations in the United States, the other supervoltage machines being in New York, Detroit, Chicago, Seattle, Los Angeles, and Pasadena.

### RADIUM

The following hospitals reported ownership of radium in the amounts indicated:

|  | Milligrams |
|---|---|
| Lord Lister, Omaha | 50 |
| Nicholas Senn, Omaha | 110 |
| University of Nebraska, Omaha | 96 |
| Total | 256 |

In the following cities the indicated amount of radium is owned privately in addition to that owned by hospitals:

| | Milligrams |
|---|---|
| Chadron | 20 |
| Columbus | 100 |
| Crawford | 50 |
| Lincoln | 185 |
| Omaha | 480 |
| Total | 835 |

This gives a known total of 1,091 milligrams of medical radium in the state. There may be other small quantities owned by private physicians, but it is believed they are not large.

It has been estimated by cancer authorities that two grams of radium should be available for each million of the population, or for each 1,000 deaths from the disease. On this basis there should be available an additional 1,500 milligrams or more of radium in Nebraska.

### LABORATORY FACILITIES

Eleven hospitals reporting in this survey are without laboratory equipment for tissue examination. Four of these, however, send all or selected tissues to pathologists of recognized standing. Medically trained pathologists, devoting all or a major portion of their time to laboratory work, were found in Lincoln and Omaha.

### AUTOPSIES

A wide variation was noted in the number of autopsies performed in hospitals reporting in this survey. Referring to Table 15, it is seen that six hospitals reported no autopsies during 1933. The bed capacity of these six hospitals was 275 and in them, 3,339 patients, of whom 43 were cancer patients, were cared for during 1933. There were 164 deaths among these patients not one of whom came to autopsy. Seven other hospitals had a smaller percentage of autopsies than allowed by the minimum requirements of the American Medical Association, 15 per cent, for interne training. The bed capacity of these seven hospitals was 586 and among the 7,299 patients, of whom 180 were cancer patients, there were 438 deaths, only 42 of whom were autopsied. Combining the two groups of hospitals noted above, in 1933 there were in Nebraska 13 hospitals of 861 beds capacity that admitted 10,638 patients, of whom 223 were cancer patients, and in which occurred 602 deaths with but 42 autopsies.

The highest percentage of autopsies was reported by the University of Nebraska Hospital, Omaha, 65.6 per cent, followed closely by Douglas County Hospital, Omaha, with 58.9 per cent. Next in line was Nicholas Senn Hospital, Omaha, with 51.7 per cent, Lincoln General Hospital, Lincoln, 45.4 per cent, and Creighton Memorial, St. Joseph's Hospital, Omaha, 44 per cent. In general, a higher percentage of cancer deaths were autopsied than were all deaths.

A committee of the Lancaster County Medical Society supervises the autopsies made in the hospitals of Lincoln and also offers to autopsy any death occurring in that county. Monthly pathological conferences are held, open to all members of the county society, at which the autopsy findings and material are presented for discussion. A laboratory is maintained in the offices of the county society for the sectioning and study of all tissues removed at autopsy and for the records. A pathological museum is being developed as material accumulates. It was reported that 30 per cent of deaths in Lancaster county last year came to autopsy.

The usual excuse given for low percentage of autopsies is the inability to obtain permission of relatives. Such excuses can hardly be considered valid when other hospitals in the state, and often in the same or closely allied communities, report little or no difficulty in obtaining a high percentage of autopsies.

### OUT-PATIENT SERVICE

Five hospitals reporting in this survey have organized out-patient departments. Four of these are located in Omaha and one in Lincoln. Several other hospitals maintain facilities for the return of ambulatory patients for observation or retreatment, but do not maintain organized dispensaries for general out-patient work. In other communities visited, the medical profession undertakes the care of indigent patients in their offices.

### CANCER SERVICE

Tumor clinics organized in keeping with the recommendations of the American College of Surgeons were found in

Creighton Memorial, St. Joseph's Hospital, Omaha.
St. Catherine's Hospital, Omaha.

A similar clinic was being organized in Lincoln General Hospital, Lincoln, at the time this survey was made. The organization of special tumor clinics was being discussed in other hospitals, but no definite steps toward this end had been taken.

### SOCIAL SERVICE

Three hospitals contributing to this survey maintain departments in charge of trained social workers. In smaller communities and in smaller hospitals throughout the state, it was said that physicians were able to keep in touch with their cancer patients by frequent contact with them or with their friends and relatives.

### RESEARCH

At the time of this survey special research in the field of malignant disease was found under investigation in the University of Nebraska Hospital, Omaha. This work centered in the department of pathology and had to do with the development of chemicals with specific toxicity for cancer cells when injected into the cancer patient.

### TEACHING AFFILIATION

Four Omaha hospitals are directly affiliated with medical schools for teaching purposes. These hospitals and their affiliated schools are:

Creighton Memorial, St. Joseph's, Creighton University.
St. Catherine's, Creighton University.
Douglas County, Creighton University, University of Nebraska.
University of Nebraska, University of Nebraska.

### STATE DEPARTMENT OF HEALTH

So far as could be determined during this survey, the State Department of Health has not participated actively in any cancer program. Its contributions have been confined to the collection and analysis of vital statistics relating to cancer. Due to the restriction of its budget, the department's work for the past few years has been curtailed to the point where only the most essential activities are being carried on.

### STATE MEDICAL ASSOCIATION

The invitation to the American Society for the Control of Cancer for this cancer survey is in keeping with the interest of the State Medical Association in the cancer problem. At its annual meetings for several years there has been one or more papers on cancer and the official journal of the society, during that time, has carried a number of scientific papers dealing with some phase of the cancer problem.

At the annual meeting of the association in May, 1934, a cancer committee was appointed with five members for a term of five years each. This is a permanent committee of the association whose duty it will be to consider the problems in the field of malignant disease that are of interest to the association.

### PRIVATE HEALTH AGENCIES

The American Society for the Control of Cancer for several years has been represented in Nebraska by a state chairman, and during a portion of this time he has been assisted by an active committee. Several years ago a lay educational campaign covering the entire state was carried out under the supervision of this committee. The chairman has always retained an active interest in lay educational work and, whenever expedient, has participated in such activities to the limit of his resources.

## CANCER PREVENTION AND CONTROL

In foregoing pages details of cancer facilities and service, as found by this survey in Nebraska, have been set forth. Before discussing a program for prevention and control of cancer in Nebraska, it may be well to consider briefly some general problems connected with malignant disease.

### GENERAL CONSIDERATIONS

While mortality from heart disease is far greater than from cancer, it is probably true that cancer is the most lethal of all diseases and, untreated, kills practically all its victims. It never terminates in recovery as do acute and contagious diseases. Unless treated early and adequately, chances of a fatal termination are almost 100 per cent. Authentic reports of spontaneous cessation of malignant growth are so few as to be medical curiosities and, according to Dr. James Ewing*, the number of authentic cures of cancer by means other than surgery, x-ray, or radium, or a combination of these, is equally rare.

Deaths from cancer are increasing annually. Statisticians may debate whether this increase is relative or actual, but this question is not of so much importance to those interested in prevention and control of this disease as is the fact that more people are dying from cancer each year.

Cancer is no respecter of social or economic groups. While it falls with more economically disastrous results on those in the small income class, as does all other incapacitating illness, it is found with equal frequency among the well-to-do.

There is no known specific etiology, although all scientific workers in the field believe that chronic or protracted irritation, mechanical, chemical, or thermal, is one of the principal causative factors. There is no accepted proof that heredity plays any important part in causing this disease in humans, neither has environment any influence except in a few instances where occupation has shown a close relationship to cancer. Cancer of the bladder among dye workers, chimney sweep's cancer, and tar cancer among petroleum workers have all shown a rather close relationship to materials worked with.

Studies on the incidence of cancer have shown about three living cases to each death. Such surveys have also shown approximately three living cancer patients for each licensed physician. It is also interesting to note, although without significance, that there is approximately one cancer death annually for each licensed physician in a given state.

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*Causation, Diagnosis, and Treatment of Cancer, page 85. The Williams and Wilkins Company, Baltimore, 1931.

The only recognized treatment methods are surgery and irradiation by x-ray and radium, either singly or in combination. So far as known, every form of cancer is best treated by these methods. There is no occasion for a physician to use other forms of therapy because one of these methods may not be available locally. The interests of the patient dictate that under such conditions he should be sent where these facilities are available.

Treatment of cancer along lines recognized as adequate requires special facilities, equipment, and training. At this time there are but twelve special cancer hospitals in the United States and the great majority of such patients are being treated in general hospitals. As the profession and public become better educated to what constitutes adequate cancer service, special institutions may be developed for these patients. The provision of adequate facilities for diagnosis and treatment is beyond the means of the average general hospital, and special tumor services are being organized in some of the larger hospitals throughout the country. It remains to be seen whether general hospitals can and will provide necessary facilities and personnel to care for the cancer patient in an acceptable manner or whether institutions specially designed for this purpose will come into existence.

In addition to provision for treatment of the disease by one or more of the means mentioned previously, a well rounded cancer program includes complete records of the service rendered and a follow-up system whereby the patient's history is available over a period of years following treatment. These patients should be followed, if possible, during the remainder of their lives and all hospital cancer records should be kept open until the death certificate can be filed with them. In any event, this follow-up should be maintained for a minimum of five years if worth while evaluation of the treatment is expected.

Sufficient authentic evidence is now available to show that when treated during early stages, i. e., while the lesion is confined to its original site and without evident metastasis, permanent relief is secured in a large percentage of cases. If the disease is first seen late in its course, the chance of permanent relief is greatly reduced. It is believed that if present knowledge of the cause and cure of cancer were utilized fully by the public and the medical profession, death from this disease could be reduced from one-third to one-half. Major emphasis on methods of controlling this disease should be placed on early recognition and early adequate treatment. To accomplish this end, education of the two groups most concerned, the medical profession and the public, is necessary.

### EDUCATION OF MEDICAL PROFESSION

The medical profession should be taught to recognize cancer in its early stages and to give adequate treatment promptly after the case is diagnosed. The final results rest largely with the first physician who sees the case. If he is not prepared to give or get the answer, the patient may drift along until all hope of permanent relief is lost.

The public should not be educated to want a service that the medical profession cannot supply for lack of training and experience in the cancer field, or because of lack of hospital facilities. Should this situation arise, the public may demand provision of this service under conditions over which the profession has little or no control. Such action would take this question out of the hands of the medical profession where it properly belongs.

It is believed that, although the public has not yet taken a serious interest in cancer prevention and control, the time is not far distant when such an interest will be manifest. When this time comes, the medical profession should be ready to assume a larger responsibility in meeting the needs of the situation.

Dr. Gösta Forssell*, Director of the Radiumhemmet, Stockholm, Sweden, says:

> "It is the advice of a number of physicians who have had experience with this subject that it is more important to instruct thoroughly all physicians, as well as all those persons occupied with the care of patients, as dentists, nurses, and midwives, as to the early symptoms of cancer, than it is to attempt education of the public directly."

The time necessary to accumulate authentic information on cancer patients is so long, owing to the necessary protracted period of observation following treatment, that the education of the physician and his preparation for handling such cases must also be extended over a considerable period. The profession should keep this fact in mind and around it organize its educational activities in the cancer field so as to be ready for the larger part it surely will be called upon to play in the future control of cancer as well as to provide the best possible service for such patients at this time.

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*American Journal of Cancer. V. 20, No. 4, P. 863. April, 1934.

One requisite for improved cancer treatment is a more adequate training in acceptable diagnostic and therapeutic procedures. While cancer patients constitute but a small percentage of admissions to general hospitals, no other disease carries such a high mortality. For this reason cancer assumes an importance out of all proportion to the number of cases seen in general medical practice; and when it is realized that cancer now occupies second place as a cause of death, and that it is assuming increasing importance in the public mind, the necessity for a more thorough knowledge of the disease by the medical profession is evident.

The responsibility of the physician in this field has been outlined as follows:

> "Notwithstanding the slowness of scientific progress, the knowledge of cancer is actually growing. The truth is that more advance has been made in detailed knowledge of cancer during the last two or three generations than in all previous time. The details of this new knowledge need not be reviewed item by item. The practical outcome is that, while any complete understanding of cancer has not been reached, the power of medicine to prevent, to diagnose, and to treat cancer has been increased enormously. And the responsibilities of the physician with respect to cancer have increased likewis . On him rests primarily the duty to make sure that the individual patient receives the benefit of the knowledge and the measures that tend to prevent cancer. Briefly, prevention of cancer rests mainly on the avoidance and removal of 'local irritation'. Just how 'local irritation' acts to cause cancer is not known, but there is no doubt that it may lead to cancer. Of the tissues liable to such irritations and chronic inflammations may be mentioned the uterine cervix with its lacerations and 'chronic cervicitis', the skin and its moles and ulcers, the mouth, the tongue, the mucocutaneous junctions, the breast and the prostate with their chronic hyperplastic inflammations. Here is indeed a wide field for constant preventive efforts by the progressive, cancer-conscious physician.
>
> "Self-evidently, on the physician rests also the main responsibility for the early diagnosis of cancer, on which in turn depends the outcome of its treatment. In connection with this matter, of such vital significance to the individual patient, the physician must consider thoroughly and conscientiously such questions as these: Has he formulated for himself a wise and practical plan for action in all cases in which the question of cancer may arise? Are his regular patients likely to report to him promptly the appearance of any suggestive symptom or sign? If not, why not? Is he fully prepared to take without delay the necessary steps, either by himself or through competent consultants, to secure the final diagnosis in a given case with a doubtful lesion? Does he realize fully that it may be a fatal error to tell a patient with a suggestive lump or lesion somewhere 'to forget it and come back next month'? Are the services of a competent pathologist readily available and will adequate specimens for microscopic diagnosis reach the pathologist promptly and in the proper state of preservation? Are the special experts to whom he may refer cases for diagnosis and treatment fully equipped in all respects for prompt and efficient service? Does he accept in its full meaning the statement that the treatment of cancer, surgical as well as radiologic, should be entrusted only to those who have adequate skill and experience? These are questions that the physician must answer in a practical and trustworthy manner if he is to meet his responsibility with respect to cancer as now understood. Better control of cancer by prevention, early diagnosis and prompt treatment rests with the physician."*

One method of bringing about a better appreciation of the cancer problem by the medical profession is by giving undergraduate medical students the best possible training in diagnostic and treatment procedures. Such students should understand biopsy technique and preferably assist in such work. They should follow tissues through the laboratory and study the microscopic sections. They should be familiar with the history of the case and keep in touch with the follow-up and observation of the patient after treatment. It is believed that every undergraduate medical school should have an organized tumor service as a part of its hospital teaching equipment.

In speaking on this subject, Dr. James Ewing** has said:

> "Medical students carry a heavy burden of fundamental information about the basic sciences, but few of them ever see the various major forms of cancer in their early stages, and gain a competent knowledge of their differential diagnosis. They practice first rate chemistry, physics, and mechanics, but stand without adequate resources before the early diagnosis of the major cause of death . . . . The establishment of adequate opportunities for the study of cancer for undergraduate and graduate physicians is the first step to be taken by those seriously interested in the control of these diseases."

### POSTGRADUATE TEACHING

Another necessary element in an improved service is the giving of postgraduate courses and holding of staff conferences on cancer cases. By these means, physicians in active practice can obtain the latest information on this subject which should in turn be translated into an improved service for the cancer patient. No other group is so well fitted to take the leading part in a program of cancer control as the medical profession, but to merit and maintain this leadership, it must take advantage of all opportunities for further education of its members in this important field of medical practice.

The hospital staff conference offers one of the best opportunities for postgraduate education, as all parties to the diagnosis and treatment of the case are available for consultation and discussion. The pathologist can present evidence disclosed by the laboratory and the microscope. The roentgenologist can interpret the x-ray findings, and the diagnostician can contribute the result of his examinations. From these combined reports, the best treatment of the patient can be developed and all features of the case made available for study and discussion.

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*The Responsibility of the Physician in the Prevention, Diagnosis, and Treatment of Cancer. Editorial, Journal A. M. A., Dec. 30, 1933, p. 2122.

**Causation, Diagnosis, and Treatment of Cancer, pp. 40-41, Williams and Wilkins Company, Baltimore, 1931.

In this connection the following quotation from Dr. James Ewing* is of importance:

> "What constitutes a diagnosis of cancer, and by what means can it be accomplished? A diagnosis may be said to have been attained when the clinician has been placed in command of data which will enable him to understand the origin, course, and prognosis of the case in hand. This information must include the results of a physical examination of the patient, roentgenologic study, and of histological study, which reveal the structure of the tumor, the origin of the tumor, its grade of malignancy, and the grade of radiosensitivity. Without all these data, the diagnosis must be regarded as incomplete.
>
> "The physical examination of the patient covers by far the largest field in the diagnosis of cancer. Experienced and alert physicians in general or special practice, thus discover the majority of malignant tumors immediately and with considerable certainty, and thereby render to the public perhaps the most important service of practical medicine. On the other hand, careless, incomplete and perfunctory examination of the patient is daily leading to the complete oversight of precancerous lesions and established cancer, to the adoption of unwarranted and unjustified, generally less serious, diagnoses, to the hasty resort to biopsies and exploratory operations, to expensive and unnecessary radiological studies, to unfortunate delays and disappointments, all resulting in increased and unnecessary morbidity and mortality . . . . .
>
> "Until the practicing physician learns to keep the suspicion of cancer constantly in mind, knows the early manifestations of the disease, and pursues, as an invariable routine, the following up of all danger signs, there will be no great increase in the cures of cancer."

Dr. S. C. Harvey**, Professor of Surgery, Yale University Medical School, has said:

> "The necessity for an intensified attack on the problems arising from cancer in man becomes daily more apparent. With more accurate vital statistics, with the more refined methods of diagnosis, and with the drop in mortality rate as a result of the control of the diseases incidental to infancy and, early adult life, the morbidity and mortality from cancer, which strikes at the time of life when a person's experience has matured but when his work is only half done, are becoming appalling. The economic loss is secondary only to the suffering entailed in the individual and in those about him.
>
> "In former years, when the importance of this problem was less apparent, the individual person with the disease was carried in the general load of medical and surgical work with the result that the attack was desultory and ineffectual, and the general opinion was extremely pessimistic as to the outcome in the individual case. However, in the last decade everywhere throughout the civilized world, the investigation of cancer has been broadened and intensified, and the plan of attack upon its occurrence in man has gradually developed. The antituberculosis crusade of the previous generation has in many ways served as a model and an inspiration, for, although the problems differ in some respects, they are common in that the attack must be concerted and organized and centered about early diagnosis, the provision of adequate facilities, and the development of specialized professional care."

### EDUCATION OF THE PUBLIC

The public must be taught the hopefulness of early treatment of cancer so that it will seek treatment during the early stages. The profession must also be educated to recognize early signs and symptoms of the disease and to appreciate the possibility of a cure when the disease is seen in its early stages.

Two periods of delay in securing treatment must be overcome before headway can be made in controlling this disease. The first period is that between the time the patient notices something wrong and a physician is consulted. A survey made in Massachusetts in 1925 showed that the average cancer patient consulted his physician eight months after knowledge of the first symptoms of the disease, and that cancer patients who had surgical treatment and ultimately died, had waited more than ten months after the first symptoms before having an operation.

A survey* of the records of admission to the Barnard Free Skin and Cancer Hospital, St. Louis, in 1930 showed that patients with cancer of the lip waited approximately one year before applying for treatment; breast cancer patients waited approximately ten months; those with cancer of the cervix, nearly six months; while those with cancer of the skin, the most easily recognized of all, waited from 20 to 24 months before seeking medical attention.

In a study of 121 cancer patients from Missouri outside of St. Louis and St. Louis County, seen in Barnard Free Skin and Cancer Hospital in 1932**, the duration of lesions before reaching this hospital was as follows:

| | | | |
|---|---|---|---|
| Less than 1 month | 2 | 2 years | 18 |
| 1 month | 3 | 3 " | 7 |
| 2 months | 8 | 4 " | 2 |
| 3 " | 9 | 5 " | 5 |
| 4 " | 9 | 6 " | 3 |
| 5 " | 5 | 8 " | 1 |
| 6 " | 5 | 11 " | 1 |
| 7 " | 2 | 14 " | 1 |
| 8 " | 5 | 15 " | 1 |
| 9 " | 3 | 18 " | 1 |
| 11 " | 1 | 24 " | 1 |
| 12 " | 14 | 25 " | 1 |
| 16 " | 1 | | |
| 18 " | 7 | Not known | 5 |

No further evidence than the above is necessary to emphasize the need for additional constructive educational work with the public regarding the necessity for early diagnosis and treatment.

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*Causation, Diagnosis, and Treatment of Cancer, pp. 41-42. Williams and Wilkins Company, Baltimore, 1931.

**The Yale Journal of Biology and Medicine, p. 533, July, 1931.

*Journal, Missouri State Medical Association, p. 265, June, 1932.

**Data supplied by Miss Eleanor Cockerill, Social Worker, Barnard Hospital, St. Louis, Mo.

In early stages of cancer, there is usually no discomfort or pain; and although there may be a visible tumor or ulcer, the condition is often ignored. Each week's delay in treatment following the appearance of symptoms entails the loss of valuable time. In cancer of the breast, it is estimated that for each month's delay in seeking treatment, there is a loss of 16 per cent in the chance for a cure; and as the average patient with breast cancer waits six months before seeking treatment, she practically writes her own death warrant by this delay. Cancer of various sites has an optimum period for cure; and while these periods are not known definitely in many cases, the only safe rule to follow is to obtain treatment immediately after symptoms appear.

The other period of delay in securing prompt treatment is attributable to the physician. Some physicians still assume a "watchful waiting" attitude to see what further symptoms will develop that will aid in the positive diagnosis of the condition. Too often this delay spells the difference between cure and lingering death from metastases in inaccessible regions. The period of waiting by the patient can be excused in many cases because of ignorance or fear on his part; that of the physician, never.

Two outstanding fallacies regarding cancer are held tenaciously by many people. The first of those, that cancer from the beginning is an incurable disease, is also shared by too many older physicians. The second is that the presence of cancer signifies a social disgrace, and for this reason many patients will conceal the disease from their family and closest friends until so far advanced that pain and other symptoms compel its disclosure.

Another group, whose importance is greatly overemphasized by some, is composed of persons whose every abnormality is construed as cancer, a "cancerphobia" so-called. Thinking something is wrong, they consult a physician, and, on being told that no evidence of disease can be found, seek confirmation of their fears elsewhere. Such neurotic individuals will continue to worry, but in the absence of the disease, will never die from the *belief* that they have it. If they do not worry about cancer, they will worry about something else. Investigations have shown less than three per cent of those applying to certain cancer hospitals have an imaginary malignancy. Surely the other 97 per cent or more should not be dismissed as cancerphobes when their intelligence has directed them to proper sources for information about their physical condition.

Physicians should be more concerned about the cancerphobia that keeps patients away from them than about the morbidly introspective individual who is always suffering from imaginary illness. Those who know something is wrong, and delay seeking medical attention for fear they may be told they have cancer are a serious problem and constitute a large group of the hopeless cases.

The public should be taught to focus its attention on the *beginning* of cancer rather than its *end*. The public and medical profession should become familiar with the signs and symptoms, the "danger signals" of early cancer. These are:

A lump that persists in any part of the body, particularly a woman's breast.

A sore, especially about the face or buccal cavity, that does not heal within the normal healing period.

An unnnatural blood-stained discharge from a natural body orifice, particularly vagina, bladder, or rectum.

Change in size or color of warts or moles.

Persistent indigestion with loss of weight.

If the public sought medical advice when one or more of these symptoms appeared, and if the medical profession always had cancer in mind when examining such a patient, a large number of cases would be discovered in early stages when there is most hope for a cure.

Years ago the majority of cancer patients were seen in late stages. More recently the value of early treatment was established. Today prevention of cancer is being discussed as the significance of certain abnormalities become known. A group of mildly pathologic conditions of widespread distribution in the body are now looked upon as important precancerous conditions. Leukoplakia of buccal or vaginal mucous membranes, chronic cervicitis associated with cervical lacerations at childbirth, dry scaly keratoses of exposed skin areas, such as face and hands, pigmented moles and warts, if subject to irritation of clothing or other friction, are all considered potential sources of malignant degeneration as the individual grows older. One or more of these abnormal conditions may exist for years without showing suspicious changes, but as cancer in these tissues often is preceded by a period of known mild pathology, the physician cannot ignore these significant lesions of a precancerous character. Their removal is now considered a desirable preventive measure. As a rule they respond readily to appropriate treatment.

The psychology of a cancer patient is an important factor in his treatment. No other disease carries the load of depression and discouragement that cancer does. The feeling of hopelessness is difficult to overcome in many cases. Often this depression is due to the patient's ignorance of his true condition. He is not told the nature of his ailment and, as times goes on with slow improvement or aggravation of the disease, his morale suffers. The policy of telling patients that they have cancer is spreading. Reports from hospitals and clinics where frankness prevails between physician and patient, are that such frankness is appreciated and the patient is more cooperative.

The public is becoming so familiar with the symptoms of cancer that many people discuss them intelligently. In certain communities, rather positive public opinions are held regarding the value of different therapeutic measures. These opinions doubtless are developed largely from the attitude of local physicians toward the problem. An attitude of honest frankness on the part of physicians would do much to eradicate fear and erroneous conceptions of the disease from the minds of patients and the public.

In the last analysis, the best educator in the cancer field is the cured cancer patient. There are doubtless one or more such individuals in each community whose interest and experience could be utilized in bringing to the attention of others the facts about the treatment and cure of this disease.

### CANCER A PUBLIC HEALTH PROBLEM

Cancer is claiming increased attention as a public health problem. Eleven states, Colorado, Delaware, Florida, Kansas, Louisiana, Mississippi, Montana, Nevada, Oregon, Washington, and Wisconsin now have laws, or departmental regulations having the effect of law, making it a reportable disease. Adequacy of reporting varies considerably in these states, and in some the law is practically a dead letter.

Some states have passed legislation on the subject of cancer control. In this connection certain provisions in the Massachusetts law placing the cancer program under the State Department of Health may be of interest.

Section 2 of chapter 391 of the Acts of 1926 of Massachusetts provides:

> "The department shall establish and organize cancer clinics in such parts of the commonwealth as it may be most advantageous to the public health and shall conduct such clinics with or without cooperation of the municipalities, local physicians, or other agencies."

Article XVIII, section 346 of the public health law of New York, providing for the functions and activities of the State Institute for the Study of Malignant Diseases, states that:

> "The institute shall conduct investigations of the cause, mortality, rate, treatment, prevention and cure of cancer and allied diseases. There may be received free of charge in its hospital for study, experimental or other treatment, cases of cancer and allied diseases. The commissioner of health shall publish from time to time the result of its investigations for the benefit of humanity and he shall, from time to time, collate its publications in a scientific report for distribution to scientific bodies and to medical scientists and qualified members of the medical profession."

Section 349 of this same article provides for the Division of Cancer Control as follows:

> "There is created in the state department of health a division of cancer control, of which the State Institute for the Study of Malignant Diseases shall be a part. The commissioner of health through the division of cancer control shall continue to conduct investigations of the cause, mortality rate, treatment, prevention and care of cancer, and allied diseases, including the nature and extent of the facilities available in the several counties and cities of the state, for the diagnosis and treatment of these diseases, and shall cooperate with local health authorities, physicians, hospitals, clinics and voluntary associations, in the development of suitable facilities for the diagnosis, treatment and control of cancer."

The Division of Cancer Control of the Detroit Department of Health has been engaged in the follow-up of cancer patients treated in the hospitals of that city. Recently this work has been made a joint responsibility of the health department and local medical society.

With cancer incidence rising throughout the country, it would seem desirable for health departments to contribute so far as resources permit to a study of the problems associated with this disease. More accurate causes of death on death certificates might well be insisted upon. Doubtless many deaths among the aged are in reality due to cancer, even though the immediate cause of death may be noncancerous. A greater number of autopsies, especially on elderly patients, would undoubtedly reveal cancer where it was not openly evident. Many physicians refrain from autopsies on the aged when they urge them on persons in middle life. By educational activities and cooperation with medical and hospital groups, health departments can stimulate a wider interest in autopsies and more accurate death certificates, in time resulting in more accurate antemortem diagnoses.

By bringing the significance of early signs and symptoms of cancer to public attention through department publications and reports and other educational channels, as the press and radio, health departments can make a definite contribution to the treatment of cancer in early and hopeful stages and to its prevention. There are economic problems concerning both the patient and his family that require attention from medical, health, and social welfare groups. The health department can contribute to the solution of these problems by cooperating with other interested groups and agencies.

Official health agencies usually have available facilities for obtaining much factual information about cancer as well as other diseases with which they may be primarily concerned. Although some officials and students in the public health field may feel that contact with the cancer problem, except in its broadest aspects, is outside the province of a health department, it is believed that such departments have, or should have, a keen interest in any disease responsible for ten per cent or more of all deaths in communities under their control. Just because the cancer problem has not been considered of importance in health department activities is no reason why, with increasing knowledge about the disease and changing conditions under which it is being handled, such departments should not be identified with prevention and control measures. Details of participation in such work will vary with the communities in which the work is done and cannot be indicated until full information is available about each local situation.

### CANCER STATISTICS

There are fairly comparable statistics of cancer mortality in the United States and other countries influenced, as are all other vital statistics, by the accuracy with which the cause of death has been determined and the statistical facts interpreted. Mortality figures alone are of little value in planning a prevention and control program. They are of little help in discovering the frequency and distribution of the disease.

Morbidity figures are needed to give a picture of cancer at a time most hopeful for cure and control. Such statistics in general are wanting, in spite of the fact that at the present time cancer is a reportable disease in eleven states. Such figures are needed to check death certificates, to stimulate earlier diagnosis, to evaluate therapeutic methods, and to augment clinical knowledge of the disease.

There might well be associated with the collection of morbidity statistics the assembling of similar information as to results of treatment. Inasmuch as but three methods of treatment are now recognized, viz. surgery, roentgen rays, and radium, it should be a comparatively easy undertaking to obtain fairly accurate statistics on treatment from those institutions seeing the largest number of cancer patients.

Dr. Gösta Forrsell* has said:

> "In my opinion, the introduction of a means of controlling treatment in the form of obligatory statistics as to the result of treatment is much more important than are statistics as to mortality and to morbidity. The elaboration of present methods of cancer treatment and their further development depend on the availability, for practitioners and medical authorities, of trustworthy statistics as to the results of therapeutic means now in use. Such statistics are also necessary for estimating the efficiency of new forms of therapy."

For some reason the collection of morbidity statistics has been ignored by the agencies most concerned in this work. A few hospitals are specializing in cancer treatment and it is from these that available statistics are being received. As one of the essentials of acceptable tumor clinics, such as are now being organized in general hospitals, is the keeping of accurate and adequate records, it is expected that soon a considerable body of information from this source will be available on cancer morbidity and therapy. However, it will be necessary to increase the sources of this information much beyond their present number and scope before their value will in any way approach that of other diseases.

In the absence of definitely known etiological factors, the most promising attack on cancer is through the collection and analysis of all possible information bearing on it. Hospitals and physicians in private practice should take full advantage of their opportunities to record in detail the factors, both primary and collateral, that relate to their cancer patients.

### ORGANIZED CANCER SERVICE

Surveys made by the American Society for the Control of Cancer have shown that the average general hospital does not have, nor can it be expected to have, adequate facilities for the diagnosis and treatment of malignant diseases. The small number, two to three per cent, of such patients cared for, the cost of necessary equipment, especially deep therapy and radium, the absence of staff members with training and experience to insure competency in diagnosis and treatment, all suggest that the hope for an improved service to those patients rests in the development of adequate facilities in a few institutions where satisfactory work can be done.

In cooperation with the American Society for the Control of Cancer, the American College of Surgeons, through its Committee on Malignant

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*American Journal of Cancer, V. 20, No. 4, p. 854, April, 1934.

Diseases, has outlined the following types of institutions for the treatment of cancer:

1. Cancer institutes.
2. Cancer hospitals.
3. Cancer clinics in general hospitals.
    a. Complete cancer clinics.
    b. Diagnostic cancer clinics.

The quotations that follow, unless otherwise noted, are taken from the pamphlet of the American College of Surgeons entitled "Organization of Service for the Diagnosis and Treatment of Cancer," June, 1931.

### CANCER INSTITUTES

"A cancer institute is an organization equipped with hospitals and laboratories especially organized and conducted for carrying on research in relation to the nature of cancer and its diagnosis and treatment, as well as for the clinical diagnosis and treatment of actual cancer cases. . . . . .

"Institutes of this nature require very considerable endowment or such generous annual appropriations as can be obtained usually only from the state or national government. They are undoubtedly the most effective method of dealing with the cancer problem, but their cost is such that their number will inevitably be somewhat restricted."

### CANCER HOSPITALS

Cancer hospitals are devoted exclusively to the diagnosis of cancer and allied diseases. They differ from cancer institutes in that major emphasis is placed upon clinical work rather than upon research. At this time not more than twelve such hospitals are found in this country.

"Such organizations require very considerable financial support either by endowment or by annual appropriation. Hospitals of this nature may be supported by the state departments of public health, as in Massachusetts; by state universities, as in the Cancer Institute of the University of Minnesota, or partly by endowment and partly by annual subscription, as in the case of those organized under private enterprise. Institutions of this nature are coming into existence as special departments of existing hospitals in many places."

### CANCER CLINICS IN GENERAL HOSPITALS

"Where funds sufficient for the maintenance of cancer institutes, research laboratories, or special cancer hospitals are not available, the demand for improved service for cancer cases has resulted in the organization of special cancer clinics in existing general hospitals and of cancer diagnostic clinics in many places in the country in the past few years. The reason for the organization of these special cancer clinics is primarily the fact that the field of cancer diagnosis and cancer treatment has developed so widely in the past few years that only by the organization of a group of representatives of the different departments of the hospital can the full resources available at the present day for the treatment of cancer be made accessible to the individual patient. Many general hospitals are equipped with the material and apparatus needed for the treatment of cancer, including high voltage x-ray and a sufficient amount of radium, but a separate organization is required to make this equipment available for the cancer patient and to secure the necessary consultation and cooperation from the different members of the hospital staff who are interested and competent in this field."

### CANCER DIAGNOSTIC CLINICS

Hospitals unable to meet fully the requirements for a cancer service as outlined previously but which have staff members interested in cancer and a laboratory with equipment and personnel able to interpret the histological findings may offer a cancer diagnostic service to the community.

"Cancer diagnostic clinics may be organized in smaller communities where modern x-ray equipment and an adeqxuate supply of radium is lacking. The object in establishing such a clinic is to provide better diagnoses upon cancer patients, to furnish a group judgment concerning the proper means of therapy to be employed, and to educate the medical public concerning this important group of diseases. Medical men in the community should be encouraged to bring patients to such a clinic, accompanied by a complete record of the history and physical examination. When a diagnosis shall have been reached and a line of treatment suggested, the surgeon or physician will be free to continue the care of his own patient as he may see fit."

### MINIMUM STANDARDS

The American College of Surgeons* has promulgated minimum standards for cancer clinics in general hospitals. These standards can be put into effect in whole or in part as local conditions indicate. They are as follows:

"1. Organization.—There shall be a definite organization of the service, and it shall include an executive officer and representatives of all the departments of the hospital which are concerned in the diagnosis and treatment of cancer. The services of a secretary and of a social service worker shall be available.

"2. Conferences.—As an essential feature of the service there shall be regular conferences or consultations at which the diagnosis and treatment of the individual cases are discussed by all members of the clinic who are concerned with the case.

"3. Patients.—Reference to the cancer clinic of all patients in whom the diagnosis or treatment of cancer is to be considered shall be either voluntary or obligatory in accordance with the vote of the medical staff or of the governing board of the hospital.

"4. Equipment.—In addition to the diagnostic and therapeutic surgical equipment which is required in every approved general hospital there shall be available an apparatus for x-ray therapy of an effectiveness which is generally agreed upon as adequate, and an amount of radium sufficient to insure effective treatment.

"5. Records.—In addition to the records which are required in every approved hospital, there shall be additional records of:

(a) The details of the history and of the examination for cancer in different regions of the body, such as are indicated on the form records which are recommended by The Committee on the Treatment of Malignant Diseases, American College of Surgeons.

(b) The details of the treatment by radium or x-ray as indicated on the form records which are recommended by the Committee on the Treatment of Malignant Diseases, American College of Surgeons.

(c) Periodic examinations at intervals for a period of at least five years following treatment.

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*Surgery, Gynecology, and Obstetrics, June, 1931. Also published as a separate pamphlet by the College.

> "6. Treatment.—The treatment of cancer patients shall be entrusted to the members of the staff of the cancer clinic except in cases in which adequate treatment in accordance with the collective recommendation of the staff of the cancer clinic can be procured otherwise."

A discussion of some of the problems connected with an improved service for cancer patients, especially with some of the personnel problems involved, may be in order.

### PATHOLOGIST

While it does not come within the scope of this report to evaluate the training and ability of pathologists properly to interpret cancer tissues, it may be well to point out that special training and considerable experience are necessary to competency in this field. While the preparation and staining of tissue may be carried out by a technician, the best interests of the patient can be served only when the interpretation of that tissue is made by a physician with adequate training and experience in this special field.

The training and experience necessary for accurate interpretation of tumor tissue is much beyond that requisite for many other branches of clinical pathology, and the physician who equips himself for this form of medical practice should be granted better recognition in the staff organization than he now receives in many hospitals. As he is unable to share in the fees collected by the surgeon and diagnostician, although a major responsibility for proper diagnosis and treatment often rests on him, he should receive remuneration in keeping with these responsibilities. The pathologist is one of the key men in an adequate diagnostic service, and men competent in this field cannot be expected to enter it unless their position is recognized and their remuneration more in keeping with their ability and responsibility than now prevails in many cases.

The pathologist to be capable in the diagnosis of tumor tissue, must at times move out of the laboratory and into the ward and operating room. He should see the patient at the bedside and have a voice in the decision on biopsy and where one should be taken if indicated. If biopsy is to follow exploratory incision, he should select the tissue for examination and by frozen sections tell the surgeon just what he is dealing with so that indicated procedures can be effectively carried out. Chemical analysis of secretions and excretions often throws much diagnostic light on the character of the tumor. The pathologist must be able to interpret the physiologic, chemical, physical and clinical observations in addition to the microscopic picture of the stained specimen. If he is confined to his laboratory seeing only such tissues as are submitted to him, he cannot do justice to his work or to the patient. His interpretations are all the more valuable when he has the added clinical experience and information that a consultation on these cases would give.

The attempt to develop a special cancer service in hospitals without laboratory equipment for tissue diagnosis and personnel to interpret such examinations would be a procedure of doubtful value. A false sense of security in the reliability of diagnostic procedures would be engendered that would make for delay in securing adequate treatment in many cases.

The qualifications of a clinical pathologist are given in the *Journal of the American Medical Association*, October 14, 1933, page 1233, as:

> "One who is a graduate in medicine having had satisfactory training and experience in pathology, chemistry, bacteriology, or other allied subjects for at least three years subsequent to graduation, who is in good standing and has been duly licensed to practice medicine.
>
> "The pathologist shall be on a full or part-time basis with a laboratory for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source, and progress of disease in the human body. He shall devote the major portion of his time to work in this field.
>
> "The pathologist may make diagnoses only when he is a licensed graduate of medicine, has had satisfactory training and experience in pathology for at least three years subsequent to graduation from medical college, is reasonably familiar with the manifestations of disease, and is competent to make reliable reports."

### ROENTGENOLOGIST

There is a wide difference of opinion among roentgenalogists as to the optimum dosage of deep x-ray in cancer therapy. Some hold that voltages of 150,000 or less are as penetrating, if applied over a sufficient length of time, as voltages of 200,000 or more. It is realized that this question is still undecided, but undoubtedly the trend is toward higher voltages and heavier filtration. The majority of hospitals devoted exclusively to treatment of cancer and allied diseases as well as the minimum standards of the American College of Surgeons for the treatment of malignant diseases, have set 200,000 volts as a minimum for acceptable deep therapy.

Of equal importance with installation of deep therapy equipment is the frequent calibration of tubes to see that the indicated voltage is being delivered. Such measuring devices should be attached at all times to such equipment; but where this is not feasible, the output of the tubes should be measured at frequent intervals.

Dangers arising from the use of this highly specialized form of therapy by physicians without adequate training in either the physics or therapeutics of its application should be emphasized. A powerful force, about which much remains to be known, is brought into play when deep therapy treatments are given. Not only should the operator be thoroughly familiar with the general physical and therapeutic reactions of this force upon the human system, but he should appreciate differences in reaction that take place in different individuals. The use of such equipment for additional revenue, without a thorough knowledge of its physiological effects, cannot be defended on any grounds of medical science. The welfare of the patient must be held paramount to all other considerations entering into his treatment and the use of x-ray therapy for any other purpose does much to discredit the legitimate use of this form of therapy in the hands of capable physicians.

The qualifications of a roentgenologist are given in the *Journal of the American Medical Association*, February 24, 1934, page 607, as follows:

> "The candidate shall be a graduate of a medical school that is approved by the Council on Medical Education and Hospitals and shall be licensed to practice medicine in the state in which his department is located. He shall also have had special training, such as is approved by the council in radiology, roentgenology, or radium therapy at an acceptable school—preceptorship, hospital or clinic, department of radiology, roentgenology or radium therapy—for a period of at least three years. He must be a man of good standing in the medical profession, and particularly among those specializing in radiology. He shall either be on a full time basis or have definite hours of attendance at the department, such hours to be ample to ensure the element of medical consultation in every eaxmination or treatment."

In its Hospital Standardization Report for 1933, page 29, the American College of Surgeons lists the qualifications of a roentgenologist as follows:

> "The director of the x-ray department must be a graduate physician, licensed to practice medicine, ethical, in good professional standing, and having had special training in radiology. He shall be responsible not only for general supervision of the department but for interpretation of all findings. Radiotherapy must also be under supervision of a skilled physician. . . . . At all times the utmost cooperation between the radiologist and the medical staff is desirable. The former should not only be present at clinical conferences, but should also take an active part in the discussion since his contribution may be of distinct value in furthering the education of the staff."

In addition to the qualifications just cited, a new examining board for certifying specialists in radiology, the American Board of Radiology, recently has been formed. Its purpose is to examine and certify physicians as specialists in this field after they have passed a satisfactory examination by the board having the matter in charge.

> "Each applicant must establish to the satisfaction of the board that he is of high ethical standing, that he is a graduate of a medical school approved by the board, that he is a member of at least one of the societies that appoint members of the board, that he has had satisfactory experience in the practice of radiology, and that he is a physician duly licensed to practice medicine."*

The first examination of this board was held during the summer of 1934. In time a list of radiologists holding the board's certificate will be available for hospitals, medical organizations and the public

> "to assist in protecting the public against irresponsible and unqualified practitioners who profess to be specialists in radiology."*

### RADIUM THERAPIST

Radium is one of the newest and most powerful agents known to medical science and its possibilities for harm, when used by physicians without adequate training and experience, are so great that its application to human patients should be surrounded by all the safeguards medical science can suggest. Objects raised to the use of radium are dependent largely on poor results obtained in the hands of inexperienced users. Failure by the profession in general to use this agent is more to be commended than criticised, and only brings out in marked contrast the unsatisfactory results obtained by physicians who use radium occasionally without any preparation or experience. As the proper use of radium and radon requires a high degree of skill and training and a special knowledge of their effects on human tissue, the welfare of the patient usually is better safeguarded by accepted surgical procedures than by irradiation at the hands of untrained physicians.

The use of rented radium by untrained physicians is a procedure for which no commendation can be offered. More often than not, such physicians have had no special training in the use of radium and the patient will receive little lasting benefit from such treatment. The mere possession or use of radium is no more a criterion of competency in that field than would the possession of surgical instruments indicate competence as a surgeon.

Radiotherapy has long been used in Sweden, and for many years has been under direction of Dr. Gosta Forsell of the Radiumhemmet. In discussing the use of radium. Dr. Forrsell** says:

> "In Sweden radium has never been lent for use by

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*Journal American Medical Association, p. 642, Feb. 24, 1934.
**American Journal Cancer, V. 20, No. 4, p. 872, April, 1934.

doctors who lacked special training in radiotherapy. When radium is to be employed in conjunction with operations in the surgical departments, a trained radiologist is always present. The combined surgical-radiological treatment is mapped out after consultation between the surgeon and the radiologist. The radiological pre-operative and post-operative treatment is given by the radiologist."

Medical publications could render a distinct service in the control of this problem by refusing advertisements of organizations offering to rent radium indiscriminately. As the public becomes better informed regarding the necessity for adequate experience on the part of those offering irradiation therapy, and as the medical profession more fully realizes the intricate problems surrounding this form of therapy, present abuses will be eliminated and an improved service rendered to cancer patients.

So far as known, no hospital or cancer institute in this country owning radium or producing radon will permit its use by other than qualified members of its own staff.

In the province of Saskatchewan, Canada, radium has been made available by legislative appropriation. Its use is controlled by a commission of three physicians and it can be used only under the personal direction of the radiotherapist member of the commission. Physicians must bring or refer their cancer patients to the clinics maintained by the commission. Regulations governing the care of radium supplies issued by the Saskatchewan Cancer Commission provide that:

> "17. Where a medical practitioner desires the use of radiotherapy on a patient, the equipment of the Commission may be made available under the following conditions: the case shall be submitted to the consultative diagnostic clinic and, (a) its recommendations for the use of radiotherapy obtained; (b) the radium to be applied under the direction of the radiotherapist of the clinic; (c) the fees for the use of the radium to be paid, as prescribed by the Commission."

The educational qualifications of a radiumtherapist are the same as those of a roentgenologist, see page 60, and the examination of the American Board of Radiology applies to both radium therapists and roentgenologists.

### SOCIAL SERVICE

Social service work is of primary importance in an acceptable cancer service. It is most important that all cancer patients be followed carefully over a long period subsequent to their treatment either by private physicians or by hospitals. At the present time too little is known about the health of cancer patients after treatment and, as a knowledge of their subsequent condition is the only practical criterion of the effectiveness of treatment, it is essential that facilities be provided for obtaining periodic information regarding such cases.

This work can best be done by well trained and experienced medical social workers who will not only relieve the physician of a responsibility which at times is most difficult for him to discharge without seeming to be too solicitous about his patients, but will assist in gathering data most necessary to a further and better understanding of present methods of diagnosis and treatment of cancer patients.

The functions of a social worker in a tumor service may be summarized as follows:

1. To the patient and his family make clear just what is involved in the plan of treatment and assist when needed in carrying out the plan. Study social and economic problems involved and suggest a plan for their solution. Stimulate the morale of patients and encourage them to continue under observation and treatment.
2. Inform the physician in charge of the social and economic problems involved and the personality factors to be considered in treating the case.
3. To the community, the policies and procedures of the cancer service can be presented in an understanding manner as can also needs of patients being cared for. Relationship of the community to the entire cancer problem can be exemplified at times by a case involving the attention of various medical and social agencies.

In the absence of medically trained social workers, public health nurses or visiting nurses can often obtain necessary information regarding cancer patients. In the course of their daily work, they may discover information of value to physicians and hospitals having an interest in these cases.

Some authorities say no attempt should be made to organize a special tumor service until trained social workers are available. In the Report of the Royal Commission on the Use of Radium and X-rays in the Treatment of the Sick of the Province of Ontario, it is stated on page 102:

> "That in the successful treatment and control of cancer, it is essential that every patient be closely followed up so that he or she may be induced to return for observation at regular intervals. For this purpose every centre should possess an active Social Service. The duties of a Social Service should include not only the keeping track of patients and bringing them to the treatment centre, but also the supervision of home conditions, and the securing for such cases of moral, and, if required, financial aid."

Again, on page 106 of this same report, the Commission recommends:

> "That, in connection with every centre, the most careful and exact records of cases be kept, and that a Social Service be maintained for the purpose of 'following up' all patients."

### RECORDS

In addition to the professional facilities suggested for specialized tumor services in general hospitals, adequate provision should be made for recording not only the regular data found in all well kept hospital records, but additional information regarding cancer. To be of the most value, such records should be comparable for all hospitals so that an increasing volume of accurate information about cancer gradually will develop. The American College of Surgeons has formulated a cancer record that it will place at the disposal of any hospital. This blank offers a uniform method of record keeping and may well form the basis of records adopted in an organized tumor service.

The record clerk might well act as clinic clerk while patients are being examined. By so doing an insight can be obtained of the patient's problem which should result in a more comprehensive recording of essential data bearing on the case. The record department should work in close cooperation with the social service department in coordinating and analyzing information for the clinic staff and attending physician.

### HOSPITAL COOPERATION

While the entire resources of the hospital will be called on to contribute to the welfare of cancer patients, the following departments are especially concerned with this problem:

Administration.
Interne—History taking and physical examination.
Laboratory—Diagnosis.
Surgery—Diagnosis and operation.
Medicine—Diagnosis and indicated medical treatment.
Radiology—Diagnosis and treatment.
Radium Therapy—Treatment.
Nursing—Care of patient.
Social Service—Follow-up on patient.
Records.
Staff Conference—Discussion of case for benefit of all concerned.

The accompanying chart indicates some of the functions and relationships of hospital departments and other elements in an organized tumor service. The ultimate type of organization will depend on the needs of each local group.

## CANCER PREVENTION AND CONTROL IN NEBRASKA

The following facts bearing on the cancer problem in Nebraska have been developed in this survey.

While the general death rate in the state is declining, in keeping with other sections of the United States, the cancer death rate is rising. From 1920 to 1930 cancer deaths increased 32 per cent, and the death rate 38.3 per cent, while the increase in population of the state during this same period was but 6.3 per cent.

At the time of this survey 75 counties in Nebraska, containing 52 per cent of the population and nearly 12 per cent of the physicians of the state, were without hospitals of 25 beds or more. In 1932, 44 per cent of the cancer deaths were reported from these counties, some of which have access to hospitals in larger population centers by automobile and rail transportation, but others are remotely situated in this regard. This situation limits development of special tumor services to a few localities where hospital facilities and personnel are available.

There were 1,355 cancer patients hospitalized during 1933 in general hospitals of 25 beds and over. Of this number 184 died of which 82, or 44.5 per cent, came to autopsy.

All general hospitals in Nebraska admit cancer patients.

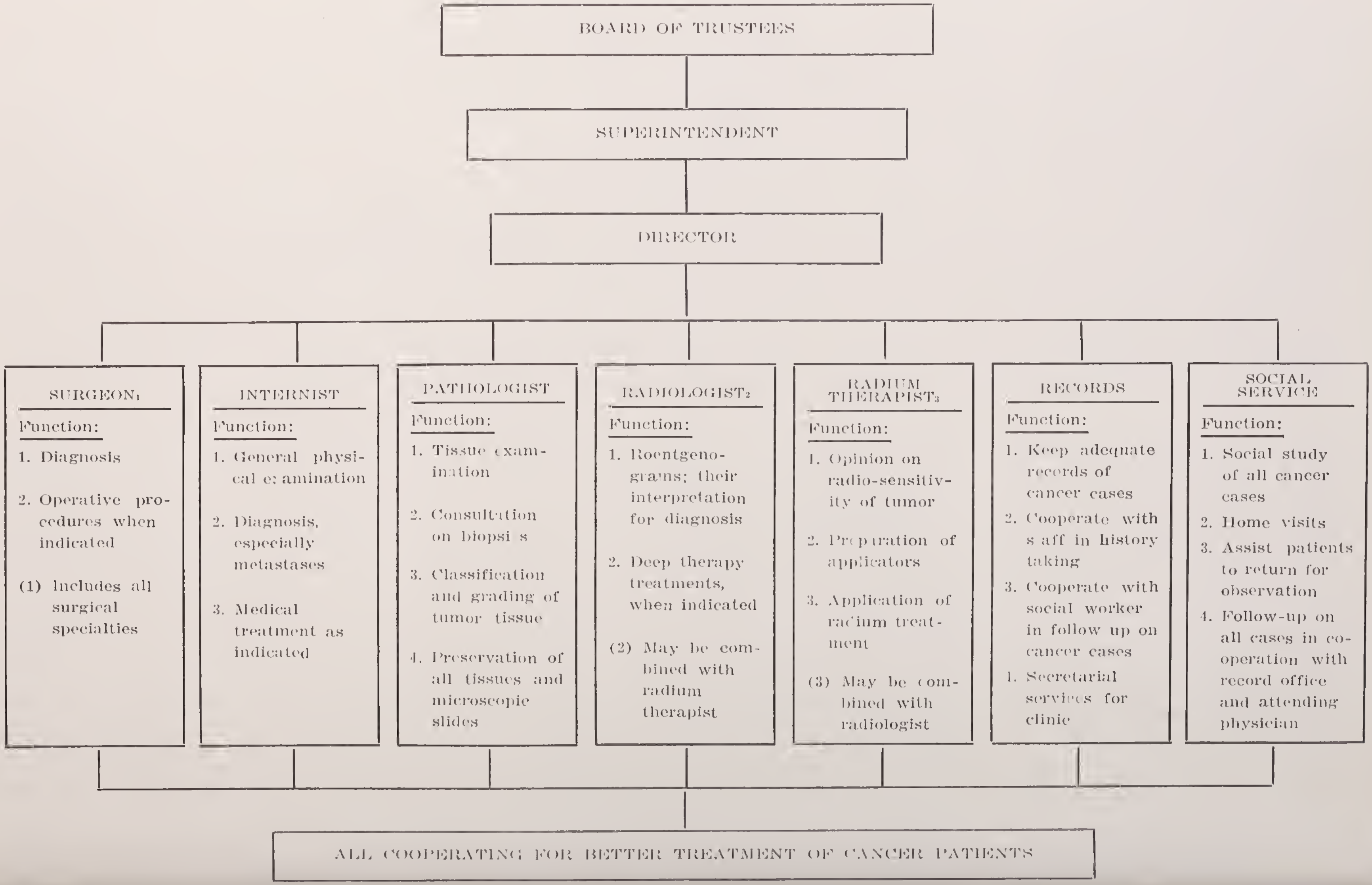
Eleven hospitals reporting in this survey are without laboratory facilities for tissue examination. Four of these, however, send all or selected tissues to pathologists of recognized standing. Medically trained pathologists, devoting all or a major portion of their time to laboratory work, were found in Lincoln and Omaha.

If all tissues discarded by hospitals in Nebraska were examined, undoubtedly some diagnoses and treatments would be changed to the benefit of the patient. Some hospitals reported that present economic conditions would not permit routine examination of all removed tissues and they were obliged to use their best judgment in selecting tissues to be examined.

With full appreciation of the financial situation throughout the state, it is felt that no commendation can be offered those hospitals and surgeons who summarily discard removed tissues without examination by a competent pathologist. In such cases the interests of the patient might be better served if indicated surgical procedures were deferred, barring emergencies, until the patient could reach an institution where adequate laboratory facilities are available. As an alternative, arrangements might be required for examination of all removed tissues in acceptable laboratories. Were such facilities available to all hospitals and practitioners of the state, many physicians in rural communities, without hospital facilities, would be able to render a more adequate service to their patients.

Precedents for such a requirement are found

CHART OF ORGANIZATION FOR CANCER SERVICE IN GENERAL HOSPITALS



**SURGEON[1]**

Function:

1. Diagnosis
2. Operative procedures when indicated

(1) Includes all surgical specialties

**INTERNIST**

Function:

1. General physical examination
2. Diagnosis, especially metastases
3. Medical treatment as indicated

**PATHOLOGIST**

Function:

1. Tissue examination
2. Consultation on biopsies
3. Classification and grading of tumor tissue
4. Preservation of all tissues and microscopic slides

**RADIOLOGIST[2]**

Function:

1. Roentgenograms; their interpretation for diagnosis
2. Deep therapy treatments, when indicated

(2) May be combined with radium therapist

**RADIUM THERAPIST[3]**

Function:

1. Opinion on radio-sensitivity of tumor
2. Preparation of applicators
3. Application of radium treatment

(3) May be combined with radiologist

**RECORDS**

Function:

1. Keep adequate records of cancer cases
2. Cooperate with staff in history taking
3. Cooperate with social worker in follow up on cancer cases
4. Secretarial services for clinic

**SOCIAL SERVICE**

Function:

1. Social study of all cancer cases
2. Home visits
3. Assist patients to return for observation
4. Follow-up on all cases in cooperation with record office and attending physician

in the province of Alberta, Canada, and in the state of New York. The Alberta law provides that:

> "Tissues or sections of tissues removed at operations shall immediately be set aside by the surgeon operating, and shall be forwarded by the superintendent to the Provincial Laboratory for examination, or to a laboratory approved of by the Provincial Laboratory together with a short statement giving the findings at the operation."

According to the Deputy Minister of Health for Alberta, Dr. Malcolm R. Bow*, operation of this law has resulted in a marked improvement in surgical work in smaller hospitals of that province. During 1931, 4,278 such specimens were examined by the laboratory staffs.

The regulations of the Sanitary Code of the New York State Department of Health read as follows:

> "Regulation 7. Tissue removed at operation or necropsy to be examined. Representative specimens, or sections for microscopic examination, of tissue removed at operation or at necropsy which require laboratory examination as an aid in the diagnosis, prevention, or treatment of disease or to determine the cause of death shall be submitted to an approved laboratory, to the division of laboratories and research, Albany or New York City, or to the state institute for the study of malignant diseases, Buffalo."

In New York, clinical pathologists wishing to examine tumor tissues, must take an examination to determine their fitness for this work. An essential part of this examination is the satisfactory identification of a series of microscopic tissue slides representing various types of malignant growth.

It should be pointed out that both in Alberta and New York legal requirements for tissue examination give properly qualified pathologists in private practice opportunity to make tumor tissue examinations, but to do so, they must give evidence of competency in this field.

At a recent meeting of the Board of Directors of the American Society for the Control of Cancer a resolution was passed stating that, in the absence of adequate laboratory facilities for the examination of tumor tissue, such facilities should be provided by the state.

From information gathered in this survey, the conclusion seems warranted that in many Nebraska hospitals neither hospital executives nor staffs are actively interested in securing autopsies. In some hospitals lack of a pathologist or internes may account for the small number or absence of autopsies. The fact that in some hospitals the number of autopsies is high, and in others but few are obtained, indicates that they can be had if the matter is approached in the proper manner.

It is believed that were concerted efforts made by the physician in charge of the case, the interne and pathologist when available, and hospital authorities, the number of autopsies in many Nebraska hospitals could be increased materially. It would also be helpful if the local medical society would throw its influence in favor of this problem as has been done in Lancaster county. Community opposition to such procedure, where it really exists, could soon be overcome by tactful measures on the part of those most interested in the problem.

In connection with an improved service for examination of tumor tissues and autopsy material, it would be well to establish a tumor registry in Nebraska. Essentials of such a registry already exist in the autopsy program of the Lancaster County Medical Society, at Lincoln. (See page 421). The establishment of a registry in Omaha would provide facilities whereby hospitals of that city could have a complete record of all tumor tissues handled in them. Such a registry should contain a stained and mounted section of tissue, the block from which the section was cut, a short description of the tumor, and concise clinical summary of the case. The registry collection should be available at all times for study by reputable physicians, medical students, and scientists interested in allied subjects. Housing of the suggested registry is a matter for local determination.

Similar registries have been established at the State Laboratory of Hygiene, Madison, Wisconsin; at Lankenau Hospital, Philadelphia; in Washington, D. C.; Peoria, Illinois; Toledo, Ohio, and elsewhere. National registries already established are the Registry for Bone Sarcoma, American College of Surgeons, Chicago, Illinois; Registry for Lymphatic Diseases, Registry of Bladder Tumors, and Registry of Eye Tumors at the Army Medical Museum, Washington, D. C.

Physicians in Nebraska, devoting all or a major portion of their time to laboratory work, might well meet periodically for study of tumor tissues encountered in their practice, or made available through the tumor registries just mentioned. Pathologists in certain states, such as Michigan, have organized a state society, one of whose chief functions is the study of tumor tissues coming to the attention of members during their professional work.

To become more proficient in their work, the development of a program for study of tumor tissues in time might well include the surgeons responsible for removal of such tissues and the radiologists who have a responsibility for both diagnosis and treatment of certain types of tumors, so that all concerned with the cancer patient would have the advantage of consultation over a large number of cases.

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*Personal communication.

A special tumor service, fully organized along lines recommended by the American College of Surgeons, was found in Creighton Memorial, St. Joseph's Hospital, Omaha. This service has been functioning for over two years and attendance is obligatory for undergraduate medical students in Creighton University. There are adequate facilities for the laboratory diagnosis of tumor tissue and for surgical and radiological therapy. Complete records are kept on all patients and the services of a social worker are available for follow-up purposes.

A special tumor service was organized recently in St. Catherine's Hospital, Omaha, and will be conducted along lines similar to the one at St. Joseph's Hospital.

Attempts have been made to develop a special tumor service in the University of Nebraska Hospital, Omaha, but because of the method of undergraduate teaching in that institution, it has not yet been possible to complete such an organization. As this hospital cares for more tumor patients than any other in Nebraska, and as it is a teaching hospital, it would seem desirable to organizze a special tumor service as soon as practicable.

Organization of a special tumor service at the Nebraska Methodist Episcopal Hospital, Omaha, is under consideration by staff members specially interested in this problem. The facilities available and number of tumor patients cared for indicate the desirability of organizing a special tumor service in this institution.

The number of cancer patients treated in Immanuel Hospital, Omaha, and the adequacy of facilities should indicate to the hospital authorities and staff members the desirability of forming a special tumor service at that institution.

Facilities already available and steps taken toward the formation of a special tumor service in Lincoln General Hospital, Lincoln, suggest that the organization should be continued until it can meet fully the requirements of the American College of Surgeons.

The organization of special tumor services in other Lincoln hospitals where deep therapy, radium, and personnel are available, would depend on the interest of their respective staffs in making such a service possible.

It is doubtful if at this time it would be advisable to attempt the organization of special tumor services elsewhere in Nebraska. This statement is made not in criticism of physicians or hospitals in other communities, but to point out that practical difficulties of providing adequate diagnostic and treatment facilities preclude the advisability of attempting special organizations for the care of tumor patients in cities other than those mentioned. So far as the resources of any community permit, the fullest possible service should be rendered to cancer patients, and when conditions are found beyond the scope of local resources, patients should be referred elsewhere for treatment.

Diagnostic and treatment methods have been developed to the point where hospitals and physicians unable to supply adequate service should consider their obligations to the patient above their desire to continue his care, and should not subject themselves to criticism for not referring such patients to institutions where adequate service can be obtained.

From the standpoint of population or number of cancer deaths, the amount of radium available in Nebraska is considerably below that recommended as adequate for therapeutic purposes. Two grams per million population or per thousand deaths would make it necessary to provide an additional 1,500 milligrams. As the development of special tumor services doubtless will be confined for a time to Omaha and Lincoln, it is probable that an additional 1,000 milligrams of radium in these cities would meet the needs of the state for some time.

Adequate supplies of radium should be available to both medical schools in Omaha for instructing all undergraduate students in this form of therapy.

Use of radium in Nebraska should be restricted to physicians competent in this form of therapy. No criticism can be offered physicians with adequate training who prefer renting radium to owning it. However, the use of radium by physicians without adequate training and experience and who have opportunities to use it only at infrequent intervals cannot be commended.

The observation might be made that, if radium is rented from local or nearby physicians, it will be much easier to obtain consultations when needed than is the case when it is obtained from distant sources where the only consultation possible is by mail or wire and without value.

Patients able to do so should pay reasonable fees for radium treatments. On the other hand, when it is available, no patient should be denied radium treatment because of inability to pay. Physicians and institutions owning radium might well remember that there is no diminution in its therapeutic value by use, and if indigent patients require treatment when the radium is not in use on paying patients, no loss is sustained in using it on such patients.

Contacts should be maintained with all cancer patients for at least five years after their first treatment, and preferably for life. This is not so difficult in smaller communities as in larger ones because the condition of patients can be readily ascertained from friends or relatives easily accessible in smaller communities. Such an undertaking requires cooperation of the clinical, record and social service departments of hospitals, and utilization of private health and welfare facilities. The following outline indicates some major sources of contact in such an undertaking.

### OUTLINE OF PLAN OF FOLLOW-UP ON TUMOR PATIENTS

A. Cooperating Groups—
  1. Hospital administrative groups
    a. Superintendent
    b. Social service worker
    c. Record clerk
    d. Chaplain
    e. Nurses
  2. Hospital staff
    a. Cancer committee—if any
    b. Physician in charge
    c. Radiologist
    d. Pathologist
    e. Internes
  3. Community groups
    a. Department of Health
      A. Public health nurses
      B. Bureau of Vital Statistics
    b. Visiting nurses
    c. Private health organizations
    d. Charitable and welfare organizations
    e. Life insurance companies

B. Records—

Records to be entered on forms comparable to all hospitals. The forms of the American College of Surgeons are recommended, not that they are necessarily the best, but offer a form from which comparable data may be obtained. Information as to deaths may often be obtained from the Division of Vital Statistics of the local or state health department.

C. Schedule—

Follow-up to be maintained on approximately the following schedule:

Monthly for the first six months
Bimonthly for six months
Every three months for the second year
Semiannually for three years
Annually thereafter, preferably for life

Information to be obtained by personal contact, by written inquiry, and through cooperating groups noted above. A personal letter is better than a printed form or post-card inquiry.

Life insurance companies will help trace an insured person if the name, number of insurance policy, and name of insurance company are given. They will know if such a person is alive and where located, or if dead, date and cause of death. Inquiries to trace such patients should be addressed to Dr. T. H. Willard, Medical Director, Metropolitan Life Insurance Company, One Madison Avenue, New York, who is chairman of the committee of the insurance companies having this matter in charge. It is suggested that the name of insurance company and the number of policy, if any, be added to the record of all cancer cases.

Organization of a special group for diagnosis and treatment of cancer should be based on two considerations; first, the better service such a group can render to cancer patients through combined diagnosis and opinion as to treatment; second, the opportunity offered for education of medical and related groups. Given proper facilities, the successful initiation of a program depends on the active interest of a few staff members. This must be a compelling interest that will not stop to count the cost in time and energy necessary to advance the plan. The pathologist, radiologist, surgeon, and internist each must be willing to contribute generously to the undertaking. Just which member of the group becomes the director depends on the local situation. The surgeon doubtless will be chosen in many cases. The pathologist, because of removal from actual clinical treatment, has much to recommend him. No matter who is chosen, selection should be on the basis of active interest, executive talent, and ability to win cooperation of other members of the special group and hospital staff.

The question of treatment of pay patients always arises when an organized tumor service is discussed. Obviously for the good of the patient, the same type of organization should be available for pay patients as serves the indigent group. It has been suggested that a physician should refer a paying cancer patient to the tumor service for diagnosis and advice regarding treatment, treatment to be carried out as he may choose. This plan gives both patient and physician the advantage of group opinion on the case. Ways can be found with fairness to all concerned to care for pay patients in a special tumor service, but development of a plan rests with the local profession and hospitals.

The following report* on five years' experience with an organized tumor service in Hollywood Hospital, Hollywood, California, which has no out-patient department and no free beds, shows the number of private patients referred by their physician to the tumor service for consultation and diagnosis, and indicates that a cooperative program can be developed for private patients when there is full cooperation of all concerned.

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*Bulletin, American Socity for the Control of Cancer, V. 16, No. 5, p. 8. May, 1934.

| "Year | New Cases | Patient Visits |
|---|---|---|
| 1929 | 108 | 157 |
| 1930 | 110 | 193 |
| 1931 | 127 | 236 |
| 1932 | 162 | 401 |
| 1933 | 225 | 530 |
| Total | 732 | 1,517 |

"The number of patients referred by doctors, either on the Hollywood Hospital staff or elsewhere, was 673. Twelve physicians have referred from 35 to 10 cases apiece to the Malignancy Committee. One hundred and ninety-six physicians had their patients consult the Committee. Five-year follow-up group for cancer of the cervix totaled 126 cases and four-year follow-up group for breast cases totaled 122 cases."

Provision of adequate diagnostic and treatment facilities for malignant disease is beyond reach of the average general hospital from current resources. Assistance in meeting this need can be expected but from two sources—private philanthropy or public taxation. Private funds usually will be larger in amount, of a more permanent nature, and with fewer political alliances to handicap their administration.

After the superiority of an organized tumor service over existing uncoordinated methods of handling these cases has been established, it then may be advisable to seek public support of this work. An extended period of demonstration is desirable, however, in order to develop local resources and interest before recourse to public funds is considered. Support of cancer control work by taxation places this disease in the public health group and distributes the burden among the entire population which by reason of this participation may develop a greater interest in the subject than if its support is left to a few community minded persons.

The best method of meeting the cancer problem in all communities has not yet been developed. The medical profession should be given a reasonable time to show what it can do. If it fails and recourse to state aid is found desirable, approach to such a course should be through medical channels. The medical profession should recognize, however, that the public is daily becoming more interested in the cancer problem. In general this interest has not yet become manifest through organization channels, but it is only a question of time until such organized interest will be evident. Unless the profession takes full advantage of present methods and facilities for diagnosis and treatment of the disease, it will be faced with the necessity of combating efforts of lay groups to place cancer with those diseases now controlled by the state.

If information now available as to methods of preventing and controlling cancer were utilized by the public and medical profession, a reduction of from 30 to 60 per cent in the incidence and mortality from this disease could be effected within a few years. This fact should stimulate all agencies, professional and lay, public and private, to concerted attack upon the problem.

The control of cancer is in the hands of the medical profession and hospitals where it properly belongs. The interested public should confine its efforts to strengthening the resources of these two groups and to lay educational work so that cancer patients will come for examination at the earliest possible moment while there is the greatest opportunity for obtaining relief.

The medical profession should appreciate that cancer is not a "one-man" disease, but requires the best thought and skill of a special group for its diagnosis and treatment. The profession also should be stimulated by the thought that cancer is one of the few diseases in which medical skill alone can bring about a cure. Neglected cancer always kills, but the physician, by his skillful removal or destruction of all malignant tissue, places his patient out of danger of death from this disease.

Physicians should not temporize with cancer or suspected cancer. Expectant treatment, viz. waiting to see what develops in the next few weeks or months, has no place in accepted cancer therapy. The answer should be obtained when the case is first seen. For practically all forms of malignancy, the physician has a choice of recognized methods of diagnosis and treatment. If such facilities are not available locally, the patient should be referred to an institution where the answer can be given. Numerous instances could be cited where delay resulted fatally when there was a strong probability of recovery by proper treatment when medical opinion was first consulted, and also where a bold approach revealed malignancy in a tumor to all appearances benign when first seen. Only by a vigorous attack by physicians skilled in diagnosis and treatment of this disease can progress be made in reducing its incidence and mortality.

Cancer is probably the greatest challenge before the medical world. Its wide distribution and increasing mortality demand the best thought of all scientists and only by intensive and cooperative efforts can the problem be solved.

The Nebraska State Medical Association can make an important contribution to cancer control by better coordination of educational and therapeutic resources of the state for benefit alike of the physician and public. A continuing program of postgraduate medical instruction to be developed in cooperation with the medical schools and the cancer committee of the state association should be offered to the physicians of the state. Such a program might well be projected over a five year period, during which at least one cancer program annually would be given before each local medical society. One type of cancer, such as breast, uterus, skin, etc., might be featured for a year's work so at the end of five years the major forms of malignant disease would have been covered in a comprehensive postgraduate course. A cancer symposium and suitable exhibit would be desirable features at each annual state meeting. A short intensive course in tumor diagnosis and treatment might well be offered annually by the medical departments of Creighton University and the University of Nebraska.

A program should be developed for the laity and speakers offered to women's clubs, churches, colleges, and civic organizations. It is believed that college students as a group offer a most promising opportunity for lay education. They are intelligent, accustomed to grasping and retaining facts, and with few exceptions have not yet encountered the disease as a personal problem. Experience gained in discussing cancer before the student bodies of the Teacher Training Schools at Chadron, Kearney, and Wayne prompts the suggestion that these and all other college student groups in Nebraska be given an annual lecture on cancer.

Development of a program of periodic releases to the newspapers of the state under authority of the State Medical Association might well be considered. A similar service in other states has provided a suitable medium for public educational programs in health and medical matters.

Radio broadcasting offers another medium of lay health education utilized by some state medical organizations. The Minnesota State Medical Association has contributed a weekly broadcast for several years, each fourth broadcast being on some cancer subject. The broadcast programs of the Lancaster and Scotts Bluff county medical societies might well be extended to other county societies having access to broadcasting facilities.

The Nebraska State Medical Association could bring about discussion and appraisal of diagnostic and treatment methods in cancer looking toward greater uniformity of procedure. It could encourage closer cooperation between the surgeon, internist, pathologist, radiologist, and family physician in handling these cases. It should take the initiative in securing more autopsies and bringing about laboratory examination of all removed tissues in hospitals of the state not now having provision for such examinations. It should encourage the appointment of cancer committees in each local medical society and in hospitals treating cancer patients. It should recommend to medical, dental, and nurse examining boards the inclusion of questions on cancer in their respective examinations.

Development of the above program should include cooperation of dentists, as they have opportunity to discover many malignant conditions in and around the mouth, and nurses who also have a responsibility in the cancer program.

Cancer is given little attention by the State Department of Health in Nebraska. Because of budget reductions, department personnel has been cut to a minimum, and as a result only major activities specified by law can be carried on. At this time about the only contribution this department will be able to make to the cancer program is the analysis of mortality figures and discussion of the problem by the State Health Commissioner in his frequent public addresses. In view of the importance of cancer as a disabling disease, creating many problems requiring extensive public education for their solution, and as a cause of death in Nebraska, the State Department of Health might well give the greatest possible emphasis to this disease and continue to cooperate as fully as its resources permit with other organizations constructively interested in the problem.

The Nebraska Committee of the American Society for the Control of Cancer could assist the State Medical Association in the preparation of material for postgraduate work and local medical society programs. It could also assist in providing competent speakers and literature for lay meetings. It could render assistance to organized tumor services by directing the public to them, by providing educational material, by helping finance needed clerical assistance when the service is in operation, by cooperating in the follow-up of cancer patients, and by similar undertakings.

It would be a practical and logical procedure for the Nebraska State Medical Association, the State Department of Health, and the State Committee of the American Society for the Control of Cancer to cooperate in a statewide educational program, details of which will be discussed later.

This plan would provide for Nebraska an improved service for all cancer patients within the state. It would educate physicians in acceptable clinical procedures and would provide the public with factual information about the disease.

## RECOMMENDATIONS

The following recommendations are made for an improved cancer control program in Nebraska:

1. Special tumor services to meet so far as possible minimum standards of the American College of Surgeons should be organized in Immanuel, Nebraska Methodist Episcopal, and University of Nebraska hospitals, Omaha: also in Lincoln General hospital, Lincoln, and in other Lincoln hospitals able to secure the cooperative interest of staff members.

2. A comparable and adequate record system should be used by all hospitals treating cancer patients. Record forms of the American College of Surgeons are recommended for this purpose.

3. Medically trained social workers should be attached to all special tumor services and should cooperate fully with clinical and record departments of hospitals with which they are connected.

4. A tumor registry should be developed in Omaha. The program of the autopsy committee of the Lancaster County Medical Society should include a tumor registry and be coordinated with the proposed registry in Omaha. Tissues, slides, and concise clinical data on all tumors removed in hospitals of Nebraska should be filed in these registries.

5. Pathologists of Nebraska should meet periodically for the study of tumor tissues and should invite the cooperation of surgeons and radiologists in these meetings.

6. The Nebraska State Medical Association should encourage provision of better laboratory facilities for tissue examination among smaller hospitals of the state.

7. The Nebraska State Medical Association should stimulate more autopsies in hospitals of Nebraska.

8. The Nebraska State Medical Association should investigate methods of treating the 65 per cent or more of cancer patients not hospitalized during their illness.

9. The Nebraska State Medical Association, through the Committee on Cancer, should organize a five year educational program among its members in which cancer of a different region would be studied each year.

10. One meeting annually of each local med cal society should be devoted to cancer and eac meeting of the state association should offer cancer symposium and suitable exhibit.

11. The Nebraska State Medical Associatio should sponsor postgraduate courses in malignan diseases in the medical schools of Creighton Uni versity and the University of Nebraska.

12. The Nebraska State Medical Associatio should stimulate hospitals to greater uniformit of procedures for diagnosis and treatment of can cer. It should recommend appointment of cancer committees in each local medical society anc in the larger general hospitals of the state.

13. The Nebraska State Medical Associatior should discourage rental and use of radium by unqualified physicians and should advise the public of the probable consequences when radium is so used.

14. The Nebraska State Medical Association in cooperation with the State Department of Health and the State Committee of the American Society for the Control of Cancer should organize a program of lay education to include an annual lecture in each college of the state. It should enlist the interest of the dental and nursing professions in its educational activities.

15. The Nebraska State Medical Association might well consider the development of a press service whereby newspapers of the state would be supplied at regular intervals with authoritative statements on health and medical matters. A similar service, utilizing the radio, might also be developed. The State Department of Health should cooperate in this work.

16. So far as facilities permit, the State Department of Health should analyze and publish its vital statistics on cancer and should assist in education of the public as indicated previously.

17. The Nebraska State Medical Association should cooperate in securing legislative appropriations sufficient to enable the State Department of Health to carry out the recommendations contained in this report.

18. The State Committee of the American Society for the Control of Cancer should maintain a constructive interest in cancer prevention and control throughout the state. Where needed, it should assist in the work of organized tumor services and should cooperate with all other health and educational forces. Its members should serve as information centers on cancer problems in their communities. Local commit-

tees should be formed when there is need for support of local cancer work.

19. It is believed that the needs of the cancer problem in Nebraska will be met by the development of organized tumor service along the lines mentioned. It is realized that cancer patients will continue to be treated in hospitals not equipped for cancer therapy and in physicians' offices, although the present status of cancer therapy makes it inadvisable for institutions or physicians to undertake such work unless there are adequate facilities for diagnosis, treatment, record keeping, and social service follow-up.

20. It is believed these recommendations for an improved cancer service in Nebraska can be made effective by cooperation of the Nebraska State Medical Association representing the clinical and educational phases of medicine, the State Department of Health, and the State Committee of the American Society for the Control of Cancer in a tri-partite organization for cancer prevention and control. This cooperative group could organize facilities of the state so that cancer patients would receive adequate treatment in the earliest possible stage of the disease. This organized effort would offer an unexcelled opportunity for undergraduate and postgraduate education in cancer diagnosis and therapy. Its effective working would make unnecessary entrance of any other agency into the field of cancer prevention and control in Nebraska. Contributions members of this tri-partite organization would make and problems on which they would cooperate are indicated in the following pages.

21. If and when this report is approved by the Nebraska State Medical Association, its publication in full in the official journal of the association is recommended.

## PROGRAM OF TRI-PARTITE ORGANIZATION FOR CANCER PREVENTION AND CONTROL IN NEBRASKA

### A.—NEBRASKA STATE MEDICAL ASSOCIATION

1. The Nebraska State Medical Association cooperating with the medical schools should develop an educational program for physicians of Nebraska in approved methods of diagnosis and treatment of cancer and allied diseases.

2. It should cooperate with hospitals and other organizations to see that adequate facilities are available and competent treatment rendered to cancer patients in these institutions.

3. It should stimulate provision of adequate laboratory facilities and trained personnel for examination of all tumor tissues removed in hospitals of Nebraska.

4. It should stimulate more autopsies in Nebraska hospitals.

5. It should urge its members promptly to refer cases which they do not care to treat to institutions and to specialists interested in such cases.

6. It should endeavor to secure better histories and treatment records of cancer cases and to obtain more accurate causes of death on death certificates.

7. It should encourage its members to read papers on cancer subjects at local and state medical meetings.

8. It should supply its members with reliable statistics showing the value of early diagnosis and adequate treatment.

### B.—STATE DEPARTMENT OF HEALTH

1. The ability of the State Department of Health to undertake the program recommended below will depend in large measure upon securing an increased budget. To the extent of its facilities, however, it should cooperate in these undertakings.

2. It should make surveys to determine the character and extent of the cancer problem within the state as to facilities available for caring for such patients and the actual number of cases and deaths in a manner similar to which information about other diseases is now obtained.

3. It should compile statistics from hospital cancer records by age, sex, organ, type of lesion, and of time elapsing between the patient's first knowledge of the disease and his seeking medical attention.

4. It should assist the Nebraska State Medical Association, welfare, and other organizations to make studies of the economic problems of cancer patients in Nebraska.

5. In cooperation with the Nebraska State Medical Association, it should stimulate provision of proper facilities for examination of tumor tissue in hospitals of the state.

6. In cooperation with the Nebraska State Medical Association, it should provide informative articles on the cancer problem for distribution to the laity.

7. It should cooperate with the State Committee of the American Society for the Control of

Cancer in its work of public education regarding early signs and symptoms of cancer and the value of early adequate treatment.

C.—NEBRASKA STATE CANCER COMMITTEE

1. This committee should cooperate with the Nebraska State Medical Association and the State Department of Health in activities suggested for these two organizations under this tripartite arrangement.

2. It should assist in education of the public in early signs and symptoms of cancer, the value of early diagnosis and adequate treatment, and where such services can be obtained.

3. It should teach the public the value of periodic examination as a means of detecting cancer in its early and most hopeful stage.

4. It should educate responsible individuals in Nebraska to the value of adequate facilities for the diagnosis and treatment of cancer and should urge the provision of funds when and where needed to supplement existing facilities for the treatment of this disease.

5. It should cooperate with voluntary health and welfare agencies in constructive activities relating to cancer.

6. It should keep fully advised of policies of the American Society for the Control of Cancer of which it is the local representative, and should avail itself of all facilities the parent society has to offer. It should furnish the Nebraska State Medical Association and the State Department of Health with educational material from the parent society and should keep the Society's Field Representative for that territory fully advised of its activities.

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## PRIMARY CARCINOMA OF THE LUNG

The recent literature abounds with references to carcinoma of the lung. Although there is only one reference under the subject of lung cancer in volume 5 (1920) of the *Quarterly Cumulative Index,* there are forty-one in volume 16 (1934). The increasing interest is due to the alleged rising incidence of cancer of the lung and to improvement in surgical technic, which offers a cure of the disease in its early stages. To determine the characteristics and malignant potentialities of different types of carcinoma of the lung, Olson(1) studied sixty-nine cases at the Mallory Institute of Pathology at the Boston City hospital and classified them on the basis of the microscopic morphology. Investigators have not followed a uniform method in the classification of lung cancers. The older writers divided thei cases into tumors arising (*a*) from the epithelium lining the bronchi (*b*) from the epithelium tha is said to line the pulmonary alveoli, and (*c* from the epithelial cells that form the mucous glands. The more recent writers have suggested a classification of these tumors from a histologic point of view. In 1912 Adler(2) stated that most lung carcinomas were bronchiogenic in origin Fried(3) reviewed the subject recently, concluding that all primary lung carcinomas originate from the mucous membrane lining the bronchi. Olson likewise believes that if nonbronchiogenic carcinomas of the lung exist they are rare. He classified histologically into three main groups the sixty-nine cases that came to necropsy: squamous cell carcinomas, adenocarcinomas and undifferentiated carcinomas. The squamous cell carcinomas comprised 42 per cent of the cases, and 28 per cent of them showed the characteristic epithelial "pearl" formation. These tumors were single, gray or white solid masses in 75 per cent of the cases. Multiple masses in one lung were found in only 8 per cent. Areas of tumor necrosis were relatively infrequent. The adenocarcinomas comprised 24 per cent of the entire series. Their chief distinguishing feature was the secretion of mucus and their resemblance to bronchial mucous glands. Since more than half of them showed definite secretory function, this group was subdivided into mucinous and nonmucinous adenocarcinomas. The resemblance of the mucinous type of adenocarcinoma to bronchial mucous glands, and the presence of a mucoid secretion in the alveoli, mark them as a characteristic lung carcinoma. Careful search in the adenocarcinomas nearly always revealed scattered cells in secretory phases, and their metastases in the majority of instances showed mucinous secretion. Grossly, the adenocarcinomas usually appeared as gray, firm, scirrhous tumors with scattered areas of softer yellowish tissue showing visible mucus. Necrosis was uncommon in this group of tumors.

The undifferentiated group of lung cancers was composed of "small cell" tumors, which in the past were often called sarcomas. They have been shown recently by several investigators to be really carcinomas. Of the total series of sixty-nine cases, 33 per cent were of the undifferentiated small cell type. The primary tumor in this group was a mass at the hilus in 65 per cent of the cases, while a secondary or primary bronchus was involved or occluded in 100 per cent. Only 43 per cent of them could be localized by lobes. The entire left lung was infiltrated in 9 per cent and the entire right lung in 4 per cent. The primary bronchi were involved in more than twice as many cases as in either of the other two types of tumors. Grossly, the undifferentiated carcinomas varied from a soft pink mass to hemorrhagic, necrotic and sometimes caseous masses. Necrosis and hemorrhage were prominent in this group.

Metastases from carcinoma of the lung have been reported in practically every part of the body. Among sixty-seven cases in which the body was examined, Olson found somatic metastases in 92 per cent involving forty-five locations in the following order of frequency: the regional nodes, liver, adrenals, vertebrae, kidneys, retroperitoneal nodes, mesenteric nodes and cervical nodes, opposite lung, mediastinal nodes and stomach. The undifferentiated small-cell type of tumor showed the most vigorous tendency to metastasize. In view of the relatively high incidence of lung cancer reported among the Schneeberg miners, it is interesting that in the Boston series pneumoconiosis was found in only 2.9 per cent of the cases. It appears that, in the general population, pneumoconiosis is not an important factor in the production of carcinoma of the lung. — *Journal A. M. A.*, Sept. 7, 1935.

1. Olson, K. B.: Primary Carcinoma of the Lung: A Pathological Study, Am. J. Path. 11:449 (May) 1935.
2. Adler, Isaac: Primary Malignant Growths of the Lungs and Bronchi, New York, Longmans, Green & Co., 1912.
3. Fried, B. M.: Primary Carcinoma of the Lung, Medicine 10:373 (Dec.) 1931.

## TREATMENT OF EXTENSIVE MALIGNANT LESIONS OF STOMACH

Waltman Walters, Rochester, Minn. (*Journal A. M. A.*, Nov. 3, 1934), is of the opinion that because of the varying degrees of the malignant process of carcinomatous lesions of the stomach, probably all malignant gastric lesions should be regarded as extensive, for the small lesion may be highly malignant and produce glandular involvement and a larger lesion may be of a low malignant degree and produce no glandular involvement. Since large malignant lesions of the stomach are usually localized in the stomach and frequently are of a low malignant degree, it is necessary that every attempt be made to remove them. Frequently such lesions in the preoperative clinical examination, particularly in the roentgenologic examination, may appear to be, because of their size and extent, inoperable; yet on abdominal exploration these lesions frequently can be removed successfully. In addition, the fact that certain other intrinsic gastric lesions, such as polypi, large gastric ulcers or foreign bodies, as well as some few extrinsic lesions, may deform the stomach to the extent that the lesion appears malignant and inoperable, even though it is benign and removable, emphasizes further the value of abdominal exploration. The finding of an extensive carcinoma localized in the stomach, even when there is associated glandular involvement, is viewed from the standpoint that unless the lesion can be removed the patient is doomed to an early death. It is felt that such a patient should not be denied the benefit of surgery if it is possible to remove the growth. Balfour's report of 50 per cent three year cures in cases of removable gastric lesions without glandular involvement and of 19 per cent three year cures in cases of malignant lesions with glandular involvement emphasizes the great value of surgical removal of all gastric carcinomas. Technical procedures assisting in the removal of extensive gastric lesions are to approach the stomach through a left rectus incision, to begin resection by dividing the duodenum below the pylorus, and to complete the posterior portion of the gastrojejunal anastomosis to the posterior wall of the stomach high above the lesion before the latter is removed. This enables a larger segment of the stomach to be removed. A temporary jejunal stoma for feeding has permitted the administration of nourishment into the intestinal canal during the postoperative period in which healing of the anastomosis is taking place. If further progress is to be made in securing a larger proportion of cures in cases of carcinoma of the stomach, every effort must be made to recognize the presence of malignant gastric lesions in their earlier stages, and in this roentgenologic examination of the stomach is of the greatest assistance. Competent roentgenologists have been able to identify accurately and to localize a polypoid or an ulcerating gastric lesion as small as 1 cm. in diameter.

## RAPIDLY DEVELOPING CATARACT AFTER DINITROPHENOL

W. W. Boardman, San Francisco (*Journal A. M. A.*, July 13, 1935), presents six cases of rapidly developing cataract after the use of dinitrophenol in women aged from 36 to 50. He calls attention to the fact that as the occurrence of cataract at this age is extremely rare and the only common factor in these cases has been the use of dinitrophenol, it would certainly seem that, until the question of the relationship between the dinitrophenol and the rapidly developing cataracts in young women is settled, the administration of the drug is definitely contraindicated.

## WE AGREE

"Say, Pop, the early birds don't get all the worms, do they?"

"That's my impression," replied Pop.

"The early apples get some of 'em, too."

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## CANCER SURVEY OF NEBRASKA

We take a certain pride in being able in this number to present Dr. Frank L. Rector's *Cancer Survey of Nebraska*.

Two years ago the House of Delegates of the Nebraska State Medical Association requested the American Association for the Control of Cancer to make a Cancer Survey of Nebraska. The survey was made during April, 1934 and a mimeographed report made available to the officers of the Nebraska association about the first of the year, 1935. Necessarily a few copies of a mimeographed report could not reach all the members of the organized profession of the state.

Naturally enough, the association having asked for the report should see to its publication. No action looking toward its publication having been taken neither by the annual councilor meeting nor by the House of Delegates at the last annual meeting of the association, (presumably through oversight in press of other business), it seemed to the editor and the publication board that something should, if possible, be done to place the report in the hands of the members of the association.

Happily, we found by investigation that one number of *The Nebraska State Medical Journal* could contain the entire report and the same is herewith presented in the November number.

It contains a vast amount of valuable information on cancer in Nebraska and it is hoped that this effort to broadcast it will be appreciated.

## A PLEA FOR COOPERATIVE ACTION

Not so very long ago Omaha, and for that matter practically every other community of profitable size, suffered from an epidemic of lay clinic and big-eyed health insurance promoters who in the utter ignorance of professional ideals and decorum literally burst with promises for obliteration of economic ills of medicine and dentistry. Insinuations and accusations were heaped upon us by these overenthusiastic promoters—we are poor business men, too individualistic, too proud, too shy, too impractical. "Thar's gold in them thar hills" if only we allowed the particular scheme to go through! In Omaha we were fortunate enough to use our heads (some came near using their feet, too). Some cities are still struggling with commercial clinics of these "visionaries." Generally, however, the epidemic died down almost as suddenly as it arrived.

The ill-trained promoter evil was followed by an even more significant menace to the profession. Sociologists and theorists suddenly took on pragmatic proportions. The League for Social Security took up the cudgels of the middle class. "The doctor may know medicine, but he certainly does not know how to practice it," said the League's brilliant secretary. "We'll show him," said the whole league. It was only through tireless organized medical society efforts that the "Model" health insurance bills introduced into every state legislature where an uninitiated politician was available, were killed either in committee or on the floor of the August gathering.

Thus we have experienced ill winds, and whether we shall benefit by their proverbial good only time will determine. The indications of medical society activities the country over point to a conscious and sincere effort at professional preservation. Everywhere one can see plans in preparation or in actual operation.

The Central Health Service, about to be put into function in Omaha, offers possibilities for benefit not only to the people in our locality but for the physician and dentist as well. Hundreds of low-income families can, and are willing to pay for their medical care, if only they had a definite idea as to its costs and how to meet them. The service will make every effort to study the individual family budget with the view to determining what the patient can pay, and arrange for methods not burdensome to the individual yet fair to the physician or dentist giving this needed care.

Its successful operation will not only reclaim the self-respect of thousands of people in that they will revert to the habit of self-support; it will be a means of saving the physician many of his patients who have already become, or are rapidly developing into, chronic, permanent clinic cases. Furthermore, it will prevent the onslaught of political control of a noble profession. Let every right-minded doctor remember that the Service represents a principle, and as such it deserves his moral as well as his practical support. IT CAN BE A SUCCESS. IT MUST BE A SUCCESS.—H. M. Jahr, in *Medical Bulletin.*

## HISTORY REPEATS IN AMERICAN MEDICAL EDUCATION

Thirty years ago there were in the United States 160 medical schools with an enrollment of 26,147. Ten years later, as a result of the investigations of the Council on Medical Education and of the publicity afforded by the Carnegie Foundation for the Advancement of Teaching, the number of schools had been reduced to ninety-six and the enrollment to 14,891. Shortly after 1918, when the war ended, there was manifested a tendency to increase; in 1925 the number of students was 18,200. During the academic year just closed it was 22,888. We have returned nearly to the place where we were when the council was created. True, the number of schools has not increased with the growing enrollments of recent years. Our 23,000 medical students today are distributed among fewer and better medical schools than were the students of a generation ago. But the factors that caused such deplorable conditions then are evidently again at work. These factors are the almost complete dependence on the income from tuition fees for the maintenance of the school and consequent failure to limit admissions to carefully selected and well qualified students. Unless this tendency is overcome there must result, inevitably, a lowering of the standards of medical education and practice. The tendency has been receiving the attention of the council. Educators, state boards of examination, physicians and public authorities may well also give it their consideration.—*Jour. A. M. A.,* Aug. 31, 1935.

## ST. LOUIS MEETING, SOUTHERN MEDICAL ASSOCIATION

The 29th annual meeting of the Southern Medical Association, the second largest medical organization in the United States, will be held in St. Louis, November 19-22.

The unusual clinical facilities of the two medical schools and the numerous hospitals, combined with the high standing of the medical profession, and the excellent hotel accommodations make St. Louis an ideal city for this medical gathering.

Addresses and papers will be presented by distinguished clinicians, not only from the South, but from all over the United States as well as from several foreign countries.

The St. Louis Medical Society extends a very cordial invitation to all physicians in good standing in their state and provincial medical societies to attend this meeting.

## EDITORIAL PARAGRAPHS

Before the days of Darwin, science classified animals by their superficial similarities, which made the whale a fish and the bat a bird.

More than 300,000 head of cattle infected with contagious abortion, Bang's Disease, have been slaughtered in the United States within recent months.

During the quarter of a century of enforcement of the pure food and drugs act, the government has brought action against 40 alleged cancer "cures."

This is to advise the next medical examination will be given November 19-20, State House, Lincoln, Nebraska. All applications must be on file at least 15 days prior to date of examination.

Science has yet to discover, with exactitude, just what sleep is, and how it is produced. But everybody knows that it is "nature's sweet restorer," and that the wise person gets plenty of it.

Good nursing care is essential in the treatment of pneumonia. Pneumonia cases are fighting a terrific battle against heavy odds; nursing care is a real life-saving measure; there is no disease in which it is more imperative.

Taking advantage of the publication of the Cancer Survey, which was in readiness several months ago, the editor, Dr. F. A. Long and Mrs. Long, accompanied a relative early in October by auto to California for a month's outing. They will be home the first days in November.

Pneumonia is third among causes of death, and every year this disease takes a toll of 100,000 lives. Every person who has a cold should consider himself potentially in danger of pneumonia. This awareness may save his life, for in no other disease is prompt recognition and action more imperative than in pneumonia.

Fats are important in the diet of children as cold weather approaches because they help to supply the fuel which is burned up in the heat and energy produced by a growing child. But they are highly concentrated foods more slowly digested than some of the other groups. The most useful and most digestible fat is butter. In addition to the fat it contains, butter furnishes the important vitamin A which helps the young body grow.

Heart disease, which takes the greatest toll of lives, of all the enemies of mankind, is to a great degree preventable. In children, heart trouble may be caused by scarlet fever, diphtheria, and streptococcus infections. In types of heart disease common to middle and late life, the early symptoms are discernible by examination. Heart disease may be arrested, and years of usefulness added to many lives, if attention is paid to the first symptoms of distress, or increasing difficulty in breathing after accustomed exertion, or pain in the chest.

The practice of medicine is a highly individualized pursuit; when a man gets sick it is not only a case of pneumonia, it is John Smith with his family problems, his hopes and fears, who is sick. Patients are always individual problems, and no x-ray or laboratory test can take the place of the skilled interpretation of such findings in terms of the particular person. One reason why mass medicine will never be accepted by the people is that when a man is sick he wants help from people in whom he has confidence, not from strangers sent to him by the state.

Dr. C. Rufus Rorem, a Chicago Ph. D. and a member of the Committee on the Cost of Medical Care, talked before the University club and Lancaster County Medical society recently on Group Hospitalization: "The plans for budgeting hospital service are known as 'group hospitalization' and apply to hospital bills only," he declared. "They do not interfere with the services of the family doctor for simple illnesses, and they leave the subscriber free to choose his own physician or surgeon in cases requiring hospital care," he explained, stating that the annual cost is usually from $5 to $12 a subscriber. In his explanation of the plan he mentioned that the American Hospital association officially endorsed the plan as a method of budgeting hospital bills, in 1933, and that last year the American College of Surgeons gave its endorsement.

---

## TUBERCULOSIS ABSTRACTS

### TUBERCULOSIS AMONG SCHOOL EMPLOYEES

Some states have laws providing for the physical examination of teachers and the exclusion of those applicants who have tuberculosis. The Attorney General of Minnesota has ruled that "the skin test for teachers is reasonable exercise of the police powers of the school boards if required for the purpose of safeguarding the pupils of public schools."

Previously the author demonstrated that children taught by teachers with open tuberculosis showed a much higher incidence of positive tuberculin reactions than those taught by other teachers. Ickert found that 93.5 per cent of the children taught by tuberculous teachers reacted to tuberculin as compared with about 25 per cent reactors in a control group. Frost reported 71 per cent reactions among pupils of a tuberculous teacher whereas only 11.4 per cent of children in adjacent districts taught by non-tuberculous teachers were positive to the test.

#### PREPARING THE WAY

The first step taken in Minneapolis to bring about a survey of school teachers and employees was to arouse the school board to the need of requiring a health certificate of all teachers. At that time, October, 1921, the value of the tuberculin test and the x-ray was not thoroughly appreciated and therefore certificates in some instances seemed almost worthless. More publicity and education was patiently carried on to prevail upon the board to demand from the teacher more specific evidence of freedom from tuberculosis.

The problem was discussed with the medical society which after careful deliberation, supported the Director of Hygiene of the Minneapolis school board in his recommendation to the board that all teachers and employees who come in contact with school children submit to a Mantoux skin test, the expense of the test to be borne hy the board.

Since there was some objection to the tuberculin test based on misunderstanding, the order adopted by the board was modified a few months later to permit the teacher to submit an X-ray film of the chest in lieu of the skin test. Protests of obstructionists continued and therefore it was considered wise to postpone the execution of the order to December 31, 1933. New objections arose but the authorities proceeded with the administration of tuberculin tests and the preparation of X-ray films of the positive reactors. False and absurd rumors which tended to disparage the procedure circulated freely, but tactful execution of the procedure overcame most of the objection and in a short time a high percentage of teachers submitted to the test.

#### PROCEDURE

A physician and a nurse visited each school building and applied the test to all employees who wished it. Arrangements had been made with the local radiologic society for the taking of X-ray films of the chests of all teachers and others concerned who were authorized by the school board to have such films made. Teachers who declined the skin test, as well as those whose tuberculin tests proved positive, were issued authorization slips for the making of the X-ray films. The films when made were forwarded to the hygiene department for corroboration.

An option on this procedure was offered, permitting teachers to have the tuberculin test applied by their private physicians, a report of the result, certified over the physician's signature, to be sent to the director of hygiene. Further, the school personnel was permitted to submit X-ray films of the chest taken by physicians of their own choice. These options were exercised at the expense of the teacher. All other costs were borne by the school board.

#### RESULTS

Altogether 2,190 persons were tested with tuberculin and 1,384 elected an option. A single dose of 0.1 mg. of tuberculin was used. Retesting of negative reactors could not be done because it was necessary to simplify the procedure.

Of those tested 49 per cent reacted. The incidence f reactors varied curiously in different schools. In wo schools in which there were less than five eachers, all were negative. The lowest number of eactors in the larger schools was 10 per cent and he highest was 82 per cent. As a group, school urses showed the highest incidence, 91 per cent. Of he 2,466 who were X-rayed 59 per cent showed no vidence of disease.

All films were interpreted by one of the authors who classified them as follows:

| | |
|---|---|
| No evidence of disease | 1,453 |
| Scoliosis | 2 |
| Possible substernal thyroid | 2 |
| Change in cardiac outline | 44 |
| Evidence of increased bronchovascular markings | 175 |
| Evidence of fibrinous pleurisy | 66 |
| Evidence of first infection type and pleurisy | 29 |
| Questionable evidence of first infection type of tuberculosis | 85 |
| Evidence of first infection type of tuberculosis | 542 |
| Evidence of parenchymal lesions | 78 |

The method employed is regarded by the authors is a means of screening out cases who should have a thorough examination for tuberculosis. The 78 persons with parenchymal lesions as well as those with changes in cardiac outline or other significant findings were all advised to consult the physician for further examination and final diagnosis. To keep a check on those with parenchymal lesions periodic roentgenographic examinations were requested at stated intervals, the films to be submitted to the Director of Hygiene of the school board. There was no interference with practitioners of medicine. The school board should not treat disease but it is definitely obligated to make sure that their employees do not disseminate tubercle bacilli in line of duty. Great care must be exercised by the board not to be too drastic in dealing with those who have parenchymal shadows. Every finding should be kept strictly confidential; even the tuberculin test should be applied on a part of the body where it is not visible to other teachers or pupils and the report on the test should be made only to the individual tested.

The costs of the survey are important to consider. All but 102 of the tuberculin tests were paid for by the school board. Of the 2,476 x-ray films 238 were not paid for by the school board. The total expense to the school board was $5,525.50.

### ADVANTAGES OF SURVEY

In the summary of the article the chief advantages of the survey are stated as follows:

"First, disease may be detected before it has produced significant symptoms and when it can be treated successfully in a short time, thus saving the teacher a long period of inactivity from work. Such cases, by adequate treatment, may be prevented from breaking down so as to be a menace to the children and other teachers. Thus, the environment so far as tuberculosis is concerned becomes much safer from the standpoint both of the teacher and of the child. Second, compulsory examinations often lead to investigation on the part of the teacher so that she becomes informed concerning the contagious nature of tuberculosis. Many such teachers become enthusiastic workers in the tuberculosis control program. This should lead ultimately to the enlistment and the support of great educational associations, which will be a valuable acquisition to the forces against tuberculosis.

Tuberculosis Among Employees of the Minneapolis Schools, F. E. Harrington, M. D., J. A. Myers, M. D., and Ida Levine, M. D., Journal of the Amer. Med. Assn., May 25, 1935.

## THE SOCIETIES

On October 1st the **Lancaster County Medical Society** met for its first regular fall meeting. Dr. J. Marshall Neely presented a paper on "The Value of Biopsy." Dr. C. K. Elliott presented a paper on "Relation of Salts of Blood to Edema."

Present at the meeting were Dr. Claude Selby, state president, and the newly appointed executive secretary, Mr. M. C. Smith. Dr. Selby and Mr. Smith each gave short talks on the Nebraska State Medical Association organization and plans.

The **Northwest Nebraska County Medical Society** was organized at Chadron, October 15th. Dr. L. G. Gant of Rushville is president and Dr. O. L. Seng of Hay Springs, secretary-treasurer. This society consists of Dawes, Sioux and Sheridan counties and, therefore, brings several new counties into the State Medical Association.

## HUMAN INTEREST TALES

Dr. and Mrs. C. W. Guildner, Kenesaw, visited Pacific coast points during August.

Dr. L. D. Dieter, Otoe, is taking a three-months course in surgery, in New York city.

Dr. Roscoe Smith, Lincoln, lost valuable x-ray equipment by a fire in his office recently.

Dr. and Mrs. H. S. Tenant, Stanton, recently visited relatives at North Platte and Julesburg, Colorado.

Dr. C. D. Brobst, for the past year in association with Dr. M. B. Wilcox, Holdrege, will locate in the east.

Dr. Scott Hill, a Chadron young man, is now assistant resident surgeon at the Cleveland Clinic hospital.

Dr. and Mrs. F. J. Bean, Omaha, visited in western Nebraska and spent some time in the Colorado mountains.

The sum of $3,000 was bequeathed to the Methodist hospital at Scottsbluff by the will of the late J. T. Ryan of Ogallala.

Dr. Carroll D. Evans, Columbus, member of a well known medical group, has located at Kimball and will operate a hospital there.

Dr. D. G. Griffith, superintendent of the Lincoln State hospital, talked before the Lincoln Rotary club on the work of the institution.

Dr. W. P. Wherry, Omaha, was reelected executive secretary-treasurer of the American Academy of Ophthalmology and Otolaryngology.

Dr. George Salter, Norfolk, gave a talk on "The Necessity of Vitamines in the Diet" before the local Parent-Teachers' association, recently.

The home of the late Mr. W. H. Lanning, Hastings, has by will become the property of the Mary Lanning hospital and will be used for a nurses' home.

Dr. A. C. Stokes, Omaha, gave a travelogue of his trip to Japan last winter, before a district meeting of the Nebraska State Nurses' association, in Omaha, recently.

Dr. and Mrs. F. A. Brewster, Holdrege, drove to Chicago recently to meet their son, who had just returned from Germany and who is a student at Northwestern university.

Dr. and Mrs. George Potter, Omaha, took their son to Northwestern university, last month, attended an ophthalmological convention at Cincinnati, and returned through the blue grass regions of Kentucky.

Our Lady of the Lourdes hospital, Norfolk, was opened September 23 by the Benedictine Sisters, in the building erected by Dr. P. H. Salter nearly twenty years ago and operated by him as the Norfolk General hospital until a few years ago, when he became connected with the Lutheran hospital.

Dr. C. P. Fordyce and family have moved to Lincoln to make their home and the daughter has entered the university. Dr. Fordyce was councilor of the state society for 8 years, living at Falls City. Six years ago he moved to Chicago where he was an assistant editor of publications of the American Medical Association and was later medical director of Merck & Co., New York, from which place he recently resigned to engage in full time literary production and editorial work. He now has writing connections with a number of eastern magazines and a medical publisher.

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## PROSTATIC HYPERTROPHY: CLINICAL LECTURE AT CLEVELAND SESSION

N. G. Alcock, Iowa City (*Journal A. M. A.*, March 2, 1935), asserts that the subject of treatment of hypertrophy of the prostate can be reduced to simple terms by letting the following statements form a basis for a discussion. 1. The enlarged prostate produces trouble only when it causes obstruction at the bladder neck. 2. The degree of obstruction is not in relation to the size of the gland but rather to the location and arrangement of the enlarged portion. 3. Obstruction is caused not by the entire enlarged portion but by enlargement in certain localities and certain directions. The four methods of overcoming bladder neck obstruction are: 1. The use of the urethral catheter either by intermittent catheterization or by the indwelling catheter. This overcomes the obstruction by putting a siphon over the dam but at best it is only temporary and it does not restore normal bladder function. 2. The permanent suprapubic drain overcomes the obstruction by diverting the flow of urine through a new channel, but it is inconvenient and unsatisfactory and more or less temporary and does not restore bladder function. 3. Surgical prostatectomy, either suprapubic or perineal, solves the problem by removing all the enlarged or hypertrophied portions of the gland. It overcomes the obstruction and it restores bladder function. 4. Transurethral prostatic resection, on the other hand, solves the problem, first, by determining accurately what portion, or portions, of the gland are causing obstruction, and, secondly, by removing accurately only those portions. It overcomes the obstruction and it restores bladder function. The author believes that in the end the question as to whether resections or prostatectomies are going to be done will be determined not by the general surgeon or the urologic surgeon but by the home physician. He is the man who sees the ultimate and final result and he is the one that is going to determine which of these operations his patients are going to have.

### ROSTER OF OFFICERS—1935

| | |
|---|---|
| Claude A. Selby, North Platte, President | 1935 |
| George W. Covey, Lincoln, President-elect | 1935 |
| George L. Pinney, Hastings, Vice-President | 1935 |
| William Shepherd, Rulo, Vice-President | 1935 |
| R. B. Adams, Lincoln, Secretary-Treasurer | 1936 |

### COUNCILORS

| | |
|---|---|
| A. P. Overgaard, Omaha, Secretary | 1936 |
| A. L. Cooper, Scottsbluff, Chairman | 1935 |
| W. R. Boyer, Pawnee City | 1936 |
| R. J. Lehnoff, Lincoln | 1936 |
| E. L. Brush, Norfolk | 1936 |
| Homer Davis, Genoa | 1937 |
| H. E. Potter, Fairbury | 1937 |
| D. D. King, York | 1937 |
| W. J. Douglas, Atkinson | 1937 |
| R. D. Bryson, Callaway | 1935 |
| L. W. Rork, Hastings | 1935 |
| O. R. Platt, North Platte | 1935 |

### DELEGATES TO THE A. M. A.

| | |
|---|---|
| R. W. Fouts, Omaha | 1936 |
| B. F. Bailey, Lincoln | 1935 |

### DELEGATES TO COUNCIL ON MEDICAL EDUCATION OF THE A. M. A.

| | |
|---|---|
| J. S. Welch | Lincoln |

### PROGRAM COMMITTEE

| | |
|---|---|
| Morris Nielsen, Blair, Chairman | One Year |
| J. W. Duncan, Omaha | Two Years |
| J. D. McCarthy, Omaha | Three Years |
| Roy H. Whitham, Lincoln | Four Years |
| R. B. Adams, Secretary, Lincoln. | |

### CANCER COMMITTEE

| | |
|---|---|
| James F. Kelley, Omaha, Chairman | 1939 |
| George W. Covey, Lincoln | 1938 |
| W. C. Harvey, Gering | 1937 |
| John Buis, Pender | 1936 |
| J. M. Willis, McCook | 1935 |

### PUBLIC POLICY AND LEGISLATION

| | |
|---|---|
| B. F. Bailey, Chairman | Lincoln |
| R. W. Fouts, Vice-Chairman | Omaha |
| K. S. J. Hohlen | Lincoln |
| J. W. Duncan | Omaha |
| E. W. Rowe | Lincoln |
| Lucien Stark | Norfolk |
| E. G. Johnson | Grand Island |
| R. B. Adams, Ex-Officio | Lincoln |

### JOURNAL AND PUBLICATION

| | |
|---|---|
| F. A. Long, Chairman | Madison |
| A. F. Tyler | Omaha |
| B. F. Bailey | Lincoln |
| R. B. Adams, Ex-Officio | Lincoln |

### CAMPAIGN COMMITTEE

| | |
|---|---|
| K. S. J. Hohlen, Chairman | Lincoln |

### COUNCIL ON MEDICAL EDUCATION

| | |
|---|---|
| J. Stanley Welch, Chairman | Lincoln |
| J. R. Nilsson | Omaha |
| Rudolph Decker | Byron |

### MEDICO-LEGAL DEFENSE

| | |
|---|---|
| R. W. Fouts, Chairman | Omaha |
| O. R. Platt | North Platte |
| R. B. Adams | Lincoln |

### PUBLIC ACTIVITIES

| | |
|---|---|
| E. R. Hays, Chairman | Falls City |
| F. W. Heagey | Omaha |
| John T. Myers | Omaha |
| J. S. Welch | Lincoln |
| C. W. M. Poynter | Omaha |

1936 ANNUAL MEETING, APRIL 7, 8, 9, LINCOLN

# THE NEBRASKA STATE MEDICAL JOURNAL

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## IMMEDIATE MANAGEMENT OF COMPOUND FRACTURES*

W. L. SUCHA, M. D.,
Omaha, Nebraska.

This subject has become much more vital in the life of the general practitioner during recent years on account of our modern means of rapid transportation and high powered machinery of every type. These have brought about a situation where any general practitioner may have carried into his office any time of the day or night, one or two or three people with one or more compound fractures each. Or he may be called to some spot on the highway or the location of some high powered machinery to attend a patient badly mangled. I feel that in most instances this patient's ultimate recovery depends to a large extent upon the immediate treatment, both as to mortality, morbidity, and ultimate percentage of disability. For the sake of consideration I choose to classify compound fractures according to the mechanism of occurrence, as:

1. Bone protruding through the soft tissue.
2. Bone fractured by a penetrating missile.
3. Compound skull fracture.

In the first group, the fracture cavity. By this I mean the cavity that is formed immediately around any fracture as a result of the bones lacerating the soft tissue to create a cavity following which the hemorrhage from the ends of the bones and from the lacerated soft tissues fills up and enlarges this cavity. In the first group then, this cavity is opened from within out by the bone coming through, first, the periosteum, then the muscle, then the fascia, and finally the skin. This type does not become infected directly until the bone is replaced, carrying back into this cavity the infection that it picked up from its contact with the outside world, the skin, clothing, and frequently the earth. That is why in this type the doctor frequently gets by with very little or no infection by the so-called watchful waiting method or perhaps cleaning off the end of the bone, painting the surrounding skin and wound with some type of antiseptic and replacing the bone.

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*Presented before the annual meeting Nebraska State Medical Association, Omaha, May 14-16, 1935.

The second group, resulting from a penetrating missile the bone is fractured directly by some object forced in from the outside, gun shot wound for example, pieces of steel, glass, wood, etc. Here you have the infection carried in by the object itself, from the skin, pieces of clothing, etc. This type is generally more seriously infected; and by the above mentioned method of treatment will have a high mortality, high percentage of member loss, long morbidity, and high percentage of permanent disability.

Thirdly, compound fractures of the skull actually are no different. They likewise are of one of the two above types. First, those that become compounded as a result of sufficient bone separation to open the overlying soft parts and cause the fracture to communicate with the outside world, and those caused by an in-driven foreign body. The first are not apt to become infected unless they have opened into an infected sinus (frontal or sphenoid) most frequently, or into the naso-pharynx through the cribriform plate. The second, of course, have the same possibilities of infection as the second group in other bones.

### MANAGEMENT OF ALL TYPES

First, hemorrhage: If hemorrhage is severe it may require a tourniquet. However, a compress with pressure is usually sufficient.

Next, transportation: Transportation is deserving of some thought, as a compound fracture will have to be transported, if only from the floor to the bed; most of them for some distance, since most compound fractures happen away from one's residence. The proper application of two principles is necessary for safe and comfortable transportation. They are, traction and immobilization. I know of no better means to apply these principles than the good old Thomas splint. Just slide it onto the arm or leg, and apply a double half hitch to the hand or foot, make sufficient traction directly to the end of the splints to cause the fractured ends of the bones to clear each oth er, and you have immediately also immobilize the member and given the patient far more relie from pain than a maximum dose of morphin would give, and at the same time stopped al further destruction of tissue. "I think all ambulance attendants, especially police emergency squads, should be schooled in the proper application of a Thomas splint with traction." Wit the hemorrhage controlled, the fracture immobilized with traction, he should be transported preferably to a hospital, but certainly somewher where surgical procedure is possible.

We are now confronted with three immediate problems:

1. Ligating or clamping all vessels necessary t stop hemorrhage.
2. Institute procedure to prevent or relieve shock.
3. Protection against infection.

*Hemorrhage* should be controlled by other means than packing if at all possible.

*Shock.* The regular orthodox treatment for prevention and relief of shock.

*Infection.* I think the best and surest way to assure yourself that your treatment will be sound, is to accuse every compound fracture, particularly those of the 2nd group, of being infected with *Stapholocci, B. Coli, Streptococci (all types), B. tetanus, B. Welchi, Perfringens and Vibrion septique.*

It follows then that the first thing to do is to have on hand for immediate administration, combined anti-tetanic and anti-gas gangrene serum. For an adult, at least 5,000 units of each *Tetanus, B. Welchi, Perfringens,* and *Vibron septique* debridement, lavage, and drainage.

### TECHNIQUE

The skin should be scrubbed with soap and water, keeping the open wound well covered with a pad of sterile gauze. Ordinary skin preparation in the way of skin antiseptics may be used also. But never in the wound, they are worse than useless. You now deal directly with the wound. This is enlarged if necessary to make it correspond with the length of the fracture cavity.

Flush and sponge the wound in the usual manner, find and tie all bleeders with catgut (linen is permissable but not desirable, never silk). For flushing the wound I always use warm sterile water from an irrigator hung about three feet above the wound. If there is grease or dirt in the wound, green soap should be used with the water. While my assistant holds the tip of the

rigating hose in the wound, I proceed to cleanse
ery minute recess of the wound, clipping away
l floating shreds of muscle and fascia. That
my guide as to what should be "debred." By
is method the debridement is very conservative,
et sufficient and thorough. The ordinary com-
ound fracture of a major bone requires from
ne gallon of water for a radius, we'll say, to
ree gallons for a femur or both bones of the
wer leg. Small tubes are then placed into the
emotest recesses of the wound. The member is
nmobilized with traction, if necessary, with
lints if possible and bi-hourly irrigations with
akin's solution begun at once. I say Dakin's
ecause I still consider it the best irrigating solu-
on, it being a most efficient oxidizing agent.
herefore fatal to anaerobes. It is also antitoxic
nd a perfect deodorant. (A few things you must
now about Dakin's to use it intelligently are:
t dissolves silk, it becomes highly irritating if
sed with or following alcohol, and it loses all its
hlorine almost immediately when mixed with
eroxide, or heated.) These irrigations are con-
inued until the wound shows evidence of being
horoughly clean, i. e., no pus, no slough, no tem-
erature for 3 or 4 days or several sterile cul-
ures.

Irrigation is then discontinued and the frac-
ure set and wounds packed with vaseline gauze
nd member immobilized.

Just a few words about compound fractures
f the skull. Those of the contra-coup type, i. e.,
nto the auditory canal, into the sinuses or into the
aso-pharynx. Here the situation is entirely dif-
erent. Irrigation is absolutely contra-indicated
or fear of backwash into the meninges. Par-
icularly is this true in those opening into the au-
litory canal. *Never* wash out the ear. In
wabbing out the auditory canal be very positive
hat the applicator is not large enough to fill the
anal and so act as a piston in a syringe, forcing
he contents of the canal into the meninges. Never
lug the canal with gauze or cotton. Give nature
chance and she will keep the flow of the current
rom within out and save your patient from men-
ngitis. Fractures into the naso-pharynx nearly
ll develop meningitis and die.

Skull fractures of the second group type caused
y in-driven missiles carrying in skin, hair and
ther material, should be carefully debred and
rained, but never irrigated.

## DISCUSSION

DR. B. R. McGRATH (Grand Island): The chief purpose for discussing a paper is to impress upon our minds some of the points so that we will not readily forget them. Fractures, as has been stated very often and in the doctor's paper, are becoming more and more common, and especially compound fractures, because of automobile, machinery and high speed. Damage suits are becoming more common, and the greatest cause of damage suits is fracture. So it behooves the general practitioner who sees the fractures first to pay especial attention to the treatment of fractures, and particular attention to the treatment of compound fractures, because they are serious and lead to serious complications.

The Doctor's paper very well reviews the important points in the treatment of compound fractures. The necessity of cleansing a wound is a point which he has not mentioned. The thing I feel I have had considerable success with in cleansing cavities of compound fractures is ether. It is a splendid cleanser, either in abdominal or joint cavities, or in compound fracture cavities. I feel ether has frequently helped me to avoid serious infections. I believe it is a cleanser we should keep in mind in handling these cases.

Another thing we must keep in mind is the necessity of keeping foreign bodies out of a fracture in its treatment. It is not so important we get alignment by putting plates or things of that kind in to hold the compound fracture. The danger of the use of the plates was well illustrated in the first year of the war. The English started treatment of compound fractures by applying Lane plates and sending the patients to England. Their death loss in compound fractures of the femur was 80 per cent of those so treated. A conference considered this proposition, and later this was changed. They no longer put in a foreign body. There was an enormous drop in the death rate from their compound fractures.

DR. J. P. LORD (Omaha): I have nothing to add and I have everything to commend in the doctor's paper. I think his practice and the reasons therefor are entirely sound, commendable, and worthy of imitation. There was a time in my career when I could expound on this subject voluminously, but I do not think there is any occasion for it at this time.

DR. E. C. HENRY (Omaha): There are two reasons why we should discuss a paper at our state meeting. The first is if a man reads a good paper and it elicits no discussion, he feels like a wet blanket had been thrown over him. The second is that discussion will sometimes bring out points the paper does not bring out, and we should, in a courteous way, be able to say to a man we think his treatment is wrong. You and I are good friends, so we hardly ever agree on much of anything.

In this particular case, I cannot quite agree as to Dakin's solution. I will tell you why. The toughest tissue in your body is the skin. You were taught when using Dakin's solution you must carefully protect the skin with vaseline. Yet you drop it in a wound where the tissues are already badly injured, and you will have slough.

If you wanted to be sure you would get court-martialed in the army, it was on the question of Dakin's solution. Before you expressed an opinion, you found what the chief surgeon believed as to the solution. If he were a Dakin man, you had to be a Dakin man. If you were opposed, you had to be sure he was opposed.

If you will pour Dakin's solution into the chest cavity, in a day or two you will have a slough. Put Dakin's solution on the skin without protection, and the skin will come off. When you put a foreign chemical into a wound, you do not always see the slough. It can take place even if covered up. It seems to me the most important thing in compound fractures is to cleanse them. I like the idea of ether. If with the ether he will put iodoform, he will find not only a good solvent for grease, fats and oils that have worked into the wound, but an excellent antiseptic, also.

May I suggest a change in his treatment through the petrous portion of the temporal bone? All the blood clots should be wiped out and the canal carefully cleansed with compound tincture of iodin. After that it should be kept open. Practically all cases of fracture through the nose, if it extends into the nasal cavity, will die. Dr. Peet said if he were sure of this, he would open the skull just above and carefully pack it and head off some catastrophies. Otherwise, the cases die of septic meningitis.

DR. H. WINNETT ORR (Lincoln): I should like to call attention to the fact that the program of treatment Dr. Sucha has proposed is exactly the program that was being employed by most surgeons in the military hospitals as well as in civil practice in 1918 and 1919, and which, by the verdict of most of the men who have written the history of that period, was pronounced a great failure of Listerism.

It seems to me some of the speaker's proposals are as improper now as then. As Dr. McGrath has suggested, introduction of foreign bodies, whether steel plates or rubber tubes, is improper treatment. They cause local damage and if frequently changed lead to the introduction of new infection. It is just a matter of degree. There are objections to the introduction of steel plates in compound fractures, and just as serious objections to the introduction of rubber tubes.

As to the use of the frequent dressing and irrigation antiseptic method, we know that the mortality and disability record was very bad. According to the report of the Surgeon General, fifty per cent of the compound fractures of the femur and leg were still unhealed a year after the war was over.

Since 1923 I have been advocating a method of traction and immobilization of fractures in correct position at the time of injury whether the fracture is simple or compound. If the wound is kept open without drainage tubes and the wound surface is protected against rubber tubes, chemical antiseptics, and the introduction of new infection by an infrequently (3-6 weeks) changed vaselin pack, a much higher percentage of good results has been shown.

We object to rubber tubes for any purpose, and irrigation with antiseptics and too frequent exposures of the wound for dressings. I want to urge upon you when you treat a compound fracture primarily you provide the drainage suggested; but as a part of that same treatment, the fracture be immobilized in correct position and a non-irritating, non-antisepti vaselin dressing be applied, and be let alone.

DR. SUCHA (closing): I am not disappointed! happened to have had the good fortune of spendin nine weeks at the Rockefeller Institute in Carrel Dakin technique. I know it does not cause sloughs o soft tissues. We never saw one in the Nebraska University Base Hospital No. 49. It irritates the ski and pleural cavity. A good deal of the skin irritatio is caused by sponging off the wound with alcoho and then using Dakin's solution. If you use peroxid or heat the Dakin's solution, it is no longer an antiseptic agent. That is the reason I mentioned thos things.

I have no quarrel with the man who wants to us any type of antiseptic agent, but do not try to us both.

Regarding foreign bodies, I was glad to hear Dr McGrath say what he did about any type of interna fixation in a compound fracture. That's out. I hav no objection to pouring ether into the wound. Tha is about the only antiseptic I would countenanc pouring into a compound fracture wound.

Regarding Dr. Orr, I do not know what he drains with unless he uses tubes. We put tubes in everywhere. I can see no objection to putting drainag tubes in. I do not know how we will drain withou them. You cannot pack a compound fracture woun with gauze and expect to get a decent drainage. Yo will have an osteomyelitis in almost all of them, because it is not sufficient drainage in a wound of compound fracture. It may be sufficient in a cavity yo have made for an osteomyelitis.

Many are in infected with bacillus coli and staphylococci and streptococci. You must give plenty o drainage. I know no way to get drainage as well as to wash it out. Use sterile water if you wish. It would be better than expecting the wound to drain by capillary attraction. If I did not do that, I would use soft rubber, because it has more capillary attractio than anything you can pack in there.

As for this being the same treatment that was used 18 years ago and was a failure then, I cannot agree with those statements. Of course, if Dr. Orr had been in the room and heard my paper he perhaps would not have made the former statement because the treatment is not the same. Only in principle. According to the experience of everyone else in the army at that time it was not a failure and I personally do not feel that the habits, likes, and dislikes of the various dangerous bacteria mentioned have changed very much in the past 18 years.

# NUTRITIONAL ANEMIA*

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Among the anemias met with in infancy and childhood, the type which seems to be due to dietary deficiency, commonly termed "nutritional anemia," is probably the most frequent. This type of anemia has recently occasioned considerable concern in the minds of pediatricians because of the studies made by Mackay(1) in London. These studies seemed to indicate that medicinal iron supplements to the diet of infancy are practically a necessity if optimal health is to be preserved. This report reached publication about the time when the effects of copper in the treatment of nutritional anemia were being investigated, and has been responsible for a large amount of subsequent investigation relative to the hemoglobin curve of infancy and the effects of various factors concerned in nutritional anemia.

There are a large number of factors, both antenatal and post-natal, which may be concerned in the mechanism of the development of nutritional anemia in infancy. In the ante-natal period the diet and health of the mother are of the greatest importance. It has long been held that, during ie last trimester of pregnancy, two-thirds of the on present in the body of the full-term infant is tored. Sheldon(2) has recently demonstrated by pectographic methods that the copper content of ie liver as well as the iron content increases progressively to a peak at the time of birth. Except or this information, what is known regarding etal storage chiefly concerns iron and the effects f maternal diet and health are usually considered nainly from the standpoint of iron storage.

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The storage of iron in the fetus may be disurbed by maternal disorders which tend to derease the amount of iron available for storage or end to shorten the length of the storage period. The latter effect implies premature birth and the legree of iron-deficiency parallels the degree of rematurity. The former effect may be produced y a variety of conditions from simple dietary deiciency in the mother to toxemia. In general. it nay be said that any disorder in the mother capable of producing anemia or a negative iron balance may interfere with fetal storage. In case of multiple pregnancy the demand for iron for fetal storage is probably greater than the maternal organism is capable of meeting and, added to this usually, is the factor of premature birth.

Regardless of ante-natal influences, nutritional anemia is rarely present at birth. A high hemoglobin percentage and a relative polycythemia is regularly exhibited in the blood of the new-born infant, whether he be full-term or prematurely born. This has long been considered as occurring in response to an insistent intrauterine demand occasioned by reduced oxygen tension. The high iron content of the circulating blood at birth gives no indication as to the total iron content of the body. A review of the events occurring during gestation is the only method by which the amount of iron stored in the body tissues of the new-born infant can be estimated. Evidence seems to indicate that these stores are augmented by iron freed during the hemolytic processes of the first few weeks of extra-uterine life.

While the infant born with a deficient antenatal storage is specifically predisposed to the development of nutritional anemia, the entirely normal full-term infant tends to develop the condition solely as a result of post-natal influences. Many observations have been made on the hemoglobin curve of the period of infancy. All of these show a similar profile, involving a marked fall during the first to third months followed by a slight rise to the fifth or sixth month and then a gradual fall through the remainder of the first year.

There is no general agreement as to what constitutes the normal level for hemoglobin values during infancy. In the curves reported by different observers for normal infants the hemoglobin content in grams per 100 c.c. of blood ranged from a level of 9.5 to 10 Gms. in Mackay's series (corrected values) to a level of 12.4 to 13.1 Gms. in the series reported by Merritt and Davidson(3). These are the levels established following the marked fall which occurs in the first three months.

The variable factors in the separate series which may explain the latitude of the readings include ante-natal influences, climatic, racial, hygienic and dietetic variations. Little attention has been paid in any of series to ante-natal influences other than length of term. It is probable that ante-natal influences are chiefly responsible for anemia developing in the infant at four to five months of age. So little is known of the effect of climate on hemoglobin levels that it is necessary to omit this variable from consideration pending further information. The racial variable is particularly difficult to evaluate because of the mixture of races in the American series. As to the hygienic variable, this probably affects only the series of institutional babies reported by Usher and these would have some hygienic advantage over other series which were made up of clinic cases from the under-privileged class. The variation in diets used is the factor which is most definite.

Before considering the diets used in various reports it is well to consider the factors concerned in the prevention of nutritional anemia. According to Witts(4) the factors necessary to insure the maturation of the normoblast and to prevent a hypoplastic reaction on the part of the bone marrow are iron, copper, vitamin "C" and thyroxine. To these Parsons(5) would add some factor or factors present in yeast, possibly the vitamin "B" complex or the amino acids of yeast.

Of these substances the body is able to produce only thyroxine and this is dependent upon external sources or internal stores of iodine. However, neither goitre nor minor deficiencies of thyroid secretion are recognized in infancy. In the untreated cretin an anemia is found which presents the same hematologic features as nutritional anemia and this anemia responds to treatment with thyroid or thyroid with iron.

Adequate provisions for vitamin "C" intake are made by nature for the breast-fed infant and the early addition of potent sources of this vitamin to the diet of the artificially fed infant is almost a universal practice. For this reason the pallor and anemia associated with scurvy are infrequently encountered.

If the iron of breast milk or cows' milk were completely absorbed, it is probably that the demands of the growing infant would be met. However, the degree of absorption of iron according to Josephs(6) is in the neighborhood of 10%. Nature's provision to avoid anemia during lactation seems to be the iron stores of fetal life. When these stores are exhausted, iron must be supplied with the diet if anemia is to be avoided.

The role of copper in blood-formation seems established, but the questions as to minimum requirements, the ability of breast milk or cows' milk to meet these requirements, and the availability of fetal copper deposits can not yet be answered.

Questions as to the identity of and the role played by the factors present in yeast have yet to be answered and, in addition to these, similar questions to those awaiting solution in connection with copper.

Besides these substances there are certain physiological processes which must be considered. These include the rapidity of growth, individual variations in requirements for iron, the degree of absorption from the alimentary canal and the functional efficiency of the erythropoietic organs.

In considering the diets of the infants in the various series, it is noticed that Mackay's infants were given an exclusive milk diet until 8 months of age, that the curve for breast-fed infants averaged about 0.5 Gms. higher than artificially fed yet the highest point on the curve of the breast-fed infant, reached at 5 months was 10.8 Gms. In a series reported by Elvehjem(7) the milk diet was supplemented gradually by the addition of orange juice at 1 month, egg yolk at 3 months, cereal at 4 months and vegetables at 6 months. This series, after the drop in hemoglobin of early infancy, maintained a level between 12 Gms. and 12.5 Gms. and at one year had reached the three year level (12.4 Gms.) of a composite group in which dietary supervision was not so exact. Average values about 0.5 Gm. higher than this were found in a series investigated by Merritt and Davidson with a similar dietary management but the value reached at one year was identical with that in Elvehjem's series. Mackay has suggested that the normal hemoglobin for infancy might be considered to be the same as that reached by the average child on a mixed diet after 2 years. While she relied on iron supplements to maintain this level in he series, the American observers were able to attain this level by the early introduction of a mixed diet.

In Usher's(8) series iron-bearing foods were not supplied until 8 months. His average curve shows a level of 12.5 Gms. at 5 months but there is a steady fall from this point to a value of 11. Gms. at one year. The general conformation o this curve corresponds with Elvehjem's curve for observations made on 750 children, in which the hemoglobin value after rising to 12.2 at about the sixth month fell to a level of 11.5 at one year The significant alteration in the average curve for the first year which has been shown to occur in those infants who receive a mixed diet including egg, cereal and vegetables by the sixth month is the absence of the slow fall which occurs during the second half of the first year in those infants who did not receive a mixed diet until 8 months or later.

In reports in which the maximum and minimum values for hemoglobin are tabulated, it is interesting to note the maximum values and speculate as to the possibilities for superior nutrition and health if these values could be universally maintained. Such maximum values closely approximate the normal values for the adult and suggest that some factor or factors limit the potentialities for hemoglobin formation in the majority of infants.

When iron administration is started soon after birth, the initial fall occurs in spite of the iron administration but the rise of the fourth and fifth months is sharper and higher hemoglobin levels are reached than in the average curve. These higher levels are maintained if iron administration is continued, the level reached being slightly higher than the average for the older child receiving a mixed diet but still not approaching that of the adult. In Usher's report, one series was given small amounts of copper with iron. The initial fall in hemoglobin was not prevented but the rise which followed was to a slightly higher sustained level than that reached in the infants who received only the iron.

A striking clinical observation in Mackay's treated group was the decrease in morbidity, amounting to 52%, as compared to the untreated group. In Usher's results the children treated with iron showed only a slight advantage over the untreated controls as regards morbidity, while those treated with iron and copper showed a more definite advantage. As regards mortality, the group treated with copper and iron showed a marked advantage and the group treated with ron a moderate advantage over the untreated group.

In anemic states in infancy, then, there seem to be two distinct mechanisms concerned, the mechanism which brings about the initial fall in early nfancy, and a second mechanism which prevents or retards the normal rise to average levels fol-owing the initial fall. This second mechanism is corrected by iron and correction may be favored, at least, by copper.

The mechanism of the initial fall seems to involve hemolytic processes which proceed more rapidly than regeneration. The fall is arrested when the regenerative processes gain the ascendancy. In instances where the fall is extremely rapid, as in the premature infant, evidences of blood regeneration tend to disappear from the peripheral blood. The prevention of this rapid fall, which may proceed to dangerously low levels, has long been one of the major therapeutic problems in premature management. Merritt and Davidson(9) have recently reviewed the history of this problem, citing Abt and Nagel's(10) opinion that a dried liver fraction combined with iron is of some value.

Premature anemia is usually considered to be due, in part at least, to functional immaturity of the hematopoietic system. If functional immaturity of the hematopoietic system can be considered in the causation of this tendency to anemia, functional immaturity of the digestive system should also be considered. This would suggest the possibility of a deficiency in the intrinsic factor of the digestive juice described by Castle in pernicious anemia.

I would like to make a preliminary and rather brief report on a few cases which have been treated with this idea in mind. The cases constitute too small a series and laboratory data in them is so meager that no definite conclusions can be drawn.

The preparation used in these cases was Lextron, a preparation of Eli Lilly and Co. It is marketed in capsules, each capsule containing: Extralin 0.455 Grm., ferrous ammonium citrate 0.2 Gm., and adsorbed vitamin "B" 16 mgm. The contents of a capsule were mixed with a little water and given as a paste.

### CASE REPORTS

L. R., a full term, male infant, born by spontaneous delivery after two unsuccessful attempts at quinine induction, developed an intense jaundice on the third day. The jaundice increased from the 4th to the 8th day and the hemoglobin fell from 95% (16.2 Gm.) to 60% (10.2 Gm.) in spite of two injections of 20 cc. of blood intramuscularly. A transfusion of 65 cc. was given and the hemoglobin rose to 75% (13 Gm.) on the 10th day. The jaundice cleared rapidly. On the 17th day the infant's condition was normal. Lextron, 1 capsule each day, was started at this time. Two weeks later, the hemoglobin was found to be 78% (13.4). At 7 weeks, egg yolk was started and Lextron was discontinued when one-half an egg yolk was taken daily. Pablum was started at 11 weeks, at which time the hemoglobin was found to be 75% (13 Gm.). Pureed vegetables were started at 4 months and the child was weaned at 5 months. At 8 months the hemoglobin was 82% (14 Gm.).

Comment: There was a marked hemolysis in this case with the rapid development of an anemia which was arrested by transfusion. No further fall occurred in the level attained after transfusion, Lextron being given until iron-bearing foods were introduced into the diet.

T. A. Normal premature infant, weight 4 pounds 9 ounces, length 17¾ inches. Artificially fed. Lextron, 1 capsule daily was started at 3 weeks. A 2 months the hemoglobin was 80% (13.8 Gm.). Egg yolk was started at this time but Lextron was continued because of favorable effect on appetite and stools. Pablum was started at 3 months, pureed vegetables at 4½ months.

P. B. Premature twin, birth weight 2 pounds 12 ounces, length 16 inches. Feedings were partially breast milk and partially formula. At 2 weeks, Lextron was started, one-half capsule given daily. In spite of this and two intramuscular injections of whole blood (20 cc. each) the hemoglobin at 5 weeks was 50% (8.6 Gm.) and the red count was 2.4 M. The Lextron was increased to one capsule daily and two additional injections of 20 cc. of blood were given. At 7 weeks, the hemoglobin had risen to 60% (10.3 Gm.). No further blood was given but the Lextron was continued and, at 10 weeks, the hemoglohin was 78% (13.4 Gm.).

P. R. Premature twin, birth weight 3 pounds 9 ounces, length 18 inches. Artificially fed. At 2 weeks, Lextron was started, one-half capsule given daily. Progress was very satisfactory. At 5 weeks, the hemoglobin was 75% (13 Gm.). The Lextron was increased to 1 capsule daily. At 10 weeks, the hemoglobin was 72%.

I have used this preparation in two other small infants but do not have any hemoglobin readings in these cases. The clinical impression is that they have maintained a hemic component in skin in mucous membranes better than the average for small infants.

In these few cases, Lextron has seemed to be of distinct value. Except for the smallest premature, anemia did not develop in any of these infants. The anemia which developed in the smallest premature developed in spite of whole blood injections. It began to recover from this anemia coincident with the increase in Lextron, two additional blood injections being given. The hemoglobin level continued to rise after the 7th week, no blood injections being given.

No gastric disturbance was produced by the Lextron. An interesting observation in connection with its use was that, only during the first week or two of administration was there a noticeable discoloration of the stools from the iron content. I have had no chemical analysis made of the stools and am unable to say whether the simplest explanation of this observation is the correct explanation. The point warrants investigation.

### SUMMARY

Some of the recent work concerning the hemoglobin levels in infancy has been discussed and attention called to reports which seem to indicate that the early introduction of iron-bearing foods into the diet of infancy is effective in preventing the deficiency anemia which occurs in the second half of the first year.

A few cases are presented in a preliminary report on the use of a combination of liver-stomach concentrate, ferrous ammonium citrate and vitamin "B" in an attempt to control the initial fall in hemoglobin in the premature infant.

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### DISCUSSION

DR. HOWARD B. HAMILTON (Omaha): Looking over this program, I think most of it could be put under the head of preventive pediatrics, which we recognize as one of the most important fields, and a field which brings the greatest return in results.

I noticed Dr. Robertson, in his very interesting paper, presented most of his cases as prematures. We all know prematures are definitely headed for anemia, and attention was called in an earlier paper to rickets. If not prevented, they are practically sure to acquire both these diseases. I am very much inclined to believe there is a lot can be done in prevention of either, or both.

The twin, if he lives—and "twin" and "premature" often are the same thing—has a growth impulse which carries him beyond the normal rate. Apparently it is greater than the ability on the part of the organism to furnish red cells and hemoglobin.

An interesting fact to which someone called my attention a short time ago is the size of the blood-forming organs. If we could gather all the bone marrow into one organ and pile it beside the liver of that individual, they would be of about equal size. It is interesting to think of the extent of the blood-forming organs. When a twin or premature is born with such a great growth impulse, it is reasonable to expect on account of the greater dilution of his vitamins and minerals that they would not be able t keep pace with his rapid growth. The doctor wa speaking of iron in that relation. I wonder, too, abou the other minerals of which we know something, bu of which we do not know as much as we do abou iron. Perhaps they are of equal importance.

The variety of diet which Dr. Robertson' recommended in the early stage—foods high in minera content—is of great advantage. It is interesting t get hold of a twin or premature and by feeding hi see the splendid results which one is able to accomplish. We can give egg yolk, and give mineral in vegetable soup early, and a little later some of th group of cereals, and furnish iron and other mineral elements which the premature needs very much.

I am reminded of the experiment of Dr. Clar Davis. She took a group of children in Chicago an placed them in an institution and put on the tabl various foods—eggs, milk, fruits, different cereals an vegetables—and allowed these children to take wha they would, and as much as they wanted. One da when a certain youngster had eaten his ninth eg and wanted another, the nurse asked Dr. Davis wha to do about it. She said, "Let him have it." He too another egg and it did not hurt him. Spinach wa the thing they were least enthusiastic about, and don't blame them. On their own selection of die these children developed apparently normally.

One thing we can do is to give milk and food containing iron; then give iron as a medicine, if necessary, and be as sure as you know how to be the get the different minerals necessary.

DR. ROBERTSON (closing): In connection wit what Dr. Hamilton said concerning the rapidity o growth of the premature infant and the extreme demands for blood formation, it seems to me as logica to consider the occurrence of extramedullary foci o hemotopoiesis as an evidence of extreme stimulatio as to consider these foci as an evidence of immaturity of the blood-forming organs.

In the management of the premature infant ther is a need for something to tide us over the earl months until a mixed diet can be introduced. Premature infants will handle iron-bearing foods, such a egg-yolk, at a surprisingly early age. In many instances, the administration of iron alone does no produce the desired effect until the infant is pas three or four months of age. However, if iron administration is started early and there is sufficient absorption and storage in the body, the premature infant makes a quick response at that time and wil take care of whatever anemia has developed, providing infection has not entered the picture. The earl administration of iron may also tend to prevent some of these infections.

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## NURSERY RHYME—1934

Picked from the Arkansas Democrat

Mary had a little cold, but wouldn't stay at home,
And everywhere that Mary went, that cold was sure
to roam;
It wandered into Molly's eyes and filled them full of
tears.
It jumped from there to Bobby's nose, and thence to
Jimmy's ears.

It painted Anna's throat bright red, and swelled poor
Jennie's head,
Dora had a fever, and a cough put Jack to bed.
The moral of this little tale is very quickly said—
She could have saved a lot of pain with just one day
in bed!

LUCY THIBAULT.

# THE RECOGNITION OF LATENT HYPOTHYROIDISM*

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The fully developed case of thyroid deficiency should be readily recognized, but the ill defined ones, because of their milder symptoms and signs, are ordinarily overlooked(1), unless the basal metabolism test is made a routine procedure in the sizing up of functional disorders in the adult. This being true, it is difficult to even hazard the percentage of people that suffer from partial forms of thyroid dysfunction.

The majority of hypothyroid patients in adult life are middle aged women. The preponderance of females over males in this disorder is probably due to the severe strain on the thyroid gland during the various epics in a woman's life in which the needs of the body for the iodine containing hormone are greatly increased. The incident is also greatly increased by factors which bring about a relative or absolute deficiency of iodine. The increasing prevalence of this dyscrasia in iodine poor localities has been a well established fact for years. Following subtotal thyroidectomy, hypothyroid states not infrequently supervene in later life. Severe acute infections, as well as focal infections, probably have an important bearing in lessening the function of this gland.

The symptomology and clinical findings of hypothyroidism are so diffuse and of such manifold diversity that Lisser(2) states it is only when the physician becomes more hypothyroid minded and aware of the conspicuous peculiarities, capricious vagaries, and hidden hints of hypothyroidism states, that he will find ample opportunity for gratifying thyroid therapy. The patient usually does not look myxedemous at all, and the dominating complaint for which relief is sought may easily lead the physician astray. Their complaints so take in the general field of medicine that practically any one of the specialties might claim the patient rather than the internist or general man.

The most characteristic symptoms of the hypothyroid state is undue fatigability and exhaustion following moderate exertion. Many of these patients are treated for primary cardiac failure without the underlying thyroid deficiency being recognized. That the myexedema heart is a definite clinical entity is testified to by many writers(3) since this term was first introduced by Zandek in 1918. The heart is enlarged and has a characteristic shape resembling the outline of a pericardial effusion. The electrocardiogram is abnormal, with a flattening or inversion of the T waves in lead ii. The blood pressure is often elevated. Various cardiac abnormalities have been reported as associated with hypothyroidism, including hydrothorax and complete heart block(4).

Many patients consult the physician with complaints of weakness, dizziness and exhaustion, and are promptly labeled as suffering from neurosis and treated as such, usually very unsatisfactorily, when the underlying cause happens to be thyroid dysfunction. Clues to the proper diagnosis are often overlooked, such as bradycardia, skin changes, sensitiveness to cold, obstinate constipation, etc. Any case of stubborn constipation should arouse suspicion of possible thyroid failure with its associated atony of the bowel(5). Other digestive complaints have been reported by numerous observers, such as abdominal pain of indefinite origin, ascites, and hepatic dysfunction(6). The following case report is illustrative of the above complaints:

Mrs. L. B., school teacher, age 47 years, weight 120 lbs. This patient had complaints dating over a period of some years, of marked exhaustion, backache, headache, insomnia, irritability, anorexia, and an irritable colon. Physical, laboratory and roentgen examinations were essentially negative except for a mild microcytic anemia and an absence of haustra in the descending colon. A diagnosis was made of exhaustion neurosis, and the patient hospitalized. On failure to make proper progress on the usual type of treatment for this condition, the patient was re-checked carefully from various angles. Certain facts not previously stressed in the history, such as prolonged profuse periods, moderate intolerance to cold, and periods of extreme constipation, were suggestive of a hypothyroid state. Physical examination with this disorder in mind disclosed dryness of the skin and hair, brittleness of the nails, cold hands and feet. The hair of the body was not otherwise abnormal, nor were there any definite signs of myxedema. Additional laboratory findings: Fasting blood sugar 81.6 mgms. Blood cholesterol 248.8 mgms. Basal metabolic rate-average three readings -22%. Patient's temperature ranged from 96° to 98°, with an average pulse of 65. It was felt that while the patient had many functional complaints, yet there were many signs and symptoms of hypothyroidism. The patient was placed on thyroid extract, grains 1, three times daily, and the basal rate gradually brought to normal. This patient immediately showed signs of marked improvement and while not entirely free of her complaints she has been in better health than for some years. The patient's maintenance dose has been 1 grain of thyroid extract daily.

Anemia may be the outstanding finding and is present in practically all hypothyroid states. Microcytic anemias that do not respond to iron therapy should be investigated as possibly due to thyroid dysfunction. The peculiar yellow, pasty, alabaster color of the hypothyroid state is due to this anemia. Subacidities and achlorhydria are not unusual in hypothyroid states and the diagnosis of pernicious anemia has been made on this gastric finding, plus the severe anemia(7).

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Rheumatic pains of various types suggesting the diagnosis of chronic arthritis are in many instances of hypothyroid origin(8). I have a case in mind of a middle aged man with suggestive symptoms and signs of severe chronic infectious arthritis, with a marked hypochromic anemia who made no response to the removal of various foci, and despite massive doses of iron and appropriate dietary measures, failed to improve until thyroid therapy was instituted. This man had many mild suggestive signs of thyroid dysfunction which had been overlooked because of failure of this diagnostic possibility being kept in mind.

Excessive uterine bleeding, the opposite of the scanty flow of hyperthyroid states is characteristic of hypothyroid inadequacy. The early appearance of the menses and their continuation after the usual menopause age is suggestive of thyroid failure(9). A case report illustrative of complaints of anemia, rheumatic pains and excessive flowing was as follows:

Mrs. C. E. F., housewife, age 49 years, weight 155 lbs. This patient complained chiefly of aching and stiffness in various joints of several months duration. Additional complaints were exhaustion and lack of energy, unusual sensitiveness to cold, moderate constipation, gain in weight, and prolonged profuse periods, associated with the menopause. Physical examination: Rather short, chunky habitus, slight coarseness of the features, with puffiness of the eyelids, coarse dry skin and hair, shoulder and neck pads. Non-palatable thyroid gland. Laboratory findings: Mild anemia, hemoglobin (Dare) 70%. Blood smear changes associated with microcytic anemia. Fractional test meal of stomach contents; free hydrochloric acid, four samples ten minutes apart, 4%, 8%, 10%, 18%. Blood sugar tolerance increased. Fasting blood sugar 84 mgms. One hour later 85 mgms. Two hours later 73 mgms. Three hours later 75 mgms. P. S. P. renal function test 60% first hour, 15% second hour. Blood cholesterol 220 mgms. Basal rate -26%, -30%, -28%. Average minus 28%. Uric acid, 4 mgms. per 100 cc. of blood. Pulse average 66. Temperature 97.5. Roentgenographs of various joints negative for demonstrable changes.

This type of patient is usually diagnosed as a mild osteoarthritis. associated with the menopause. Because of the numerous signs and symptoms suggestive of a hypothyroid dyscrasia, the patient was placed on thyroid therapy. Six months later this patient was practically free of symptoms, features having lost their coarseness, skin more moist, hair of finer texture, with complete disappearance of joint aching and stiffness. This patient has stopped her thyroid therapy. Basal metabolic rate to date is within normal limits. If the patient shows signs of regression thyroid therapy shall be reinstated.

Puffiness of the eyelids, impairment of hearing, mouth breathing and hoarseness of the voice are suggestive symptoms of this disorder.

Roughness and dryness of the skin, absence o perspiration, coarseness and loss of hair, cracking and ridging of the nails, and pigmentation o the skin are commonly found. Sensitiveness to cold is an outstanding symptom and is present to some extent in most cases if closely questioned Temperature under 97° is common.

Headaches are found in about 50% of cases Mental torpor with emotional and physical lethargy, punctuated with occasional irritibility, loss of memory, initiative and concentration, and dulling of all the senses may make these patients be mistaken for various psychiatric states, or diagnosed as mental derangements as is testified in many case reports in the literature(10).

Obesity and hypothyroidism are often associated. These obese patients are usually not markedly overweight and may have the typical supraclavicular. Neuchal, bracelet, and ankle padding. We now recognize a thin irritable non-myxedemous type(11) who is far from being phlegmatic, but rather is over responsive to environmental influences. These patients will increase in weight and have restoration of placid dispositions on thyroid therapy.

We have many aids to help us in the diagnosis of hypothyroidism preeminent of which is the estimation of the basal metabolic rate. While the level of metabolism is closely related to the presence or absence of symptoms, yet in some cases markedly low rates are not associated with thyroid deficiencies. Rates below minus 30, extending on down to the lowest levels obtainable, 45%, are in the zone of complete myxedema. Rates from minus 20 to 30 are in a region associated with definite signs of hypothyroidism. Rates from a minus 10 to a minus 20 are in a zone in which latent signs and symptoms may exist.

This zone of difficult recognition may be compared to that of latent pulmonary tuberculosis, in which the detection of lesions is made possible only by the use of Roentgen films.

It is a question by some observers whether these hypo-metabolisms above minus 20% are even of thyroid origin(12). Some of them, no doubt, result from unknown causes quite disassociated from the thyroid, but the majority are ssociated with various stigmata of hypothyroidism and respond in a reasonably satisfactory manner to the administration of thyroid extract.

We should be cognizant of the many technical errors that may creep into basal rate studies. The ummation of three readings should be averaged o determine the proper rate. We should realize that many other diseases may be associated with low basal rates and not let this technical aid be our sole guide in making a diagnosis. In children, bone age studies of the various ossification centers and epiphyseal unions, determine exactly the degree of thyroid retardation. We are indebted to Englebach and McMahon(13) for heir splendid studies in this field of roentgen diagnosis.

A significant correlation between the basal metabolic rate and the blood cholesterol has been established by many observers. An increase in the blood lipoids is rather constantly associated with hypothyroidism and is an important adjunct in the differentation of hypothyroidism from other metabolic disorders associated with low basal rates. The determination of the blood cholesterol is of a special value in childhood hypothyroidism(14).

The significant advances made recently in the study of blood and urine iodine(15) promises to be of great benefit. In hypothyroidism a decrease of total blood iodine is had and after the intravenous administration of potassium iodide the blood iodine curve remains longer and on a higher level, with a marked increase in the urine iodine.

Studies of the fasting blood sugar and of sugar tolerance tests are of some help. Hypothyroid states lean more towards the side of increased glucose tolerance and fasting hypoglycemias.

Treatment: In the medical treatment of this disorder ordinary desiccated thyroid gland is usually used. Because of the difference in potency of commercial preparations, it is better to use one standarized product and become familiar with its use. (One grain of desiccated thyroid extract equals 5 grains of fresh substance.) It is usually best to begin with doses of about one half grain, increasing the dose one half grain every five days until tachycardia, nervousness, or loss of weight indicate that the limits of tolerance have been reached. A basal metabolic rate should be taken at this time. If the toxic symptoms from the thyroid medication are annoying, the patient should have a rest period of from three to five days. In the treatment of severe types of hypothyroidism, or in the reduction of overweight, one dose should be given daily. In the latent types the dosage should be divided into two or three daily fractions.

The proper dosage cannot be estimated by the depth of the basal rate. The greater the basal depression, and the more profound the hypothyroidism, the more delicate the response to thyroid substance in the severe grades. Three or four grains daily may suffice to bring the rate to normal, whereas in some of the milder hypothyroidisms, dosages of ten to twelve grains daily may be required.

Thyroxin is used only infrequently(16). One (1) mg. of thyroxin intravenously produces the same effect as one half (½) grain of desiccated thyroid extract orally. The basal metabolic rate is raised three per cent for every mg. of intravenous thyroxin used. Thyroxin has a cumulative effect. It exerts its maximal influence in about three days and takes about three weeks for the influence to wear off.

Neither the size of the patient or the weight change under treatment should be used as a guide for dosage. One sound reason for not pushing thyroid therapy at the onset of treatment is the danger of acute heart failure in the severe grades of thyroid failure.

Patients that acquire an increased resistance to the drug should have the preparation changed or thyroxin should be used temporarily. Foreign protein in some cases will resensitive the tissues.

The lean type of individual is usually quite sensitive to thyroid medication, small doses particularly should be used in this type.

In conclusion it might be well to repeat the suggestion offered by numerous students(17) in the field of the endocrines that the physician who is now doing routine urinary examination, blood counts, and serum Wassermanns, should add the basal metabolic test to the routine examination of his patients and he will be surprised by the number of unsuspected abnormal basal rates that will be revealed.

(Bibliography in Reprints)

## DISCUSSION

DR. HERMAN JAHR (Omaha): I should like to emphasize what Dr. Gardiner said about hypothyroidism in the child, especially as it pertains to early ages, say between one and two years. Very often at this stage of childhood sluggish mentality is diagnosed mental deficiency. In reality it often turns out hypothyroidism. The difference between the two conditions, you can readily appreciate, is great, hypothyroidism being amenable to treatment where mental deficiency offers little hope for improvement.

The administration of thyroid extract to these children with hypothyroidism offers a definitely good prognosis, that is, with the taking of the extract the child's mentality will improve and stay improved so long as the drug is being taken. In my experience children tolerate thyroid extract rather well, often in comparatively large dosage. It is generally known that some children who do not tolerate smaller doses will not be upset by a larger dose. I have given as much as three grains a day for a marked hypothyroidism in a child not to mention the heavy dosage of thyroid extract in children with nephrosis.

DR. S. A. SWENSON (Oakland): I should like to ask in regard to the administration of thyroid extract in patients with heart disease. Why give it three times a day? Can't you give a daily dose once as well as three times a day?

DR. GARDINER (closing): It is possible that Dr. Jahr's cases were not suffering from severe grades of hypothyroidism and therefore they tolerated larger doses of thyroid extract. It is fairly well agreed that in the severe grades of hypothyroidism with low basal rates there is often extreme sensitiveness to the action of thyroid extract. The dosage of the extract cannot be judged on the basal rate alone. I have one patient, with not an unusually severe grade of thyroid failure, who takes (12) grains daily.

In answer to Dr. Swenson's question: In patients with cardiac weakness, the beginning doses should be small, usually (½) grain daily for four or five days. If no unusual reaction occurs, such as nervousness, tachycardia, etc., I would increase another (½) grain daily and feel my way along until the patient is on the proper dosage. The one dosage daily is usually the best treatment for patients who have severe hypothyroidism, or for patients who are reducing. In the milder cases divided small doses are usually more effective. There is no definite scientific reason for dividing the drug dosage.

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# THE RESPONSIBILITY OF THE PHYSICIAN TO THE HARD OF HEARING*

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This paper deals with the problems of the hard of hearing and the responsibility of the physician to these problems.

It is estimated that there are over ten million hard of hearing persons in the United States and three million of these are children. In the same proportion there would be about 125,000 persons with a hearing defect in our state of Nebraska and 38,000 of these children. These figures speak for themselves and while the percentage of deafness may not be as great among the people living in smaller communities as among city folks yet it does not vary much and the problems are the same. As Abe Martin says, "There isn't much to see in a small town but what you hear makes up for it."

We shall first consider the problems of the hard of hearing in childhood because, if benefit from medical treatment is to be obtained it is necessary to detect deafness in the early stages. So, it is in deafness of childhood that aid should be sought and treatment begun. The first problem is the detection of hearing defects—this is probably best done in connection with health examinations given school children.

A group testing audiometer is now available for this purpose and is being used in the schools of many of the larger cities in the United States. Omaha has just this year fallen into this class of cities. The Omaha League for the Hard of Hearing, a group of persons with hearing defects, realizing their own handicap, presented to the Board of Education of the Omaha Public Schools, a 4-A audiometer which is now in use in our schools. With this audiometer forty children can be tested at one time and this can be done in about 20 minutes.

### DESCRIPTION

The Western Electric No. 4-A audiometer consists of a spring motor phonograph using a magnetic reproducer instead of the usual acoustic reproducers. The magnetic reproducer picks up the vibration originated by the record and transforms them into electrical vibrations. These in turn are conveyed to the telephone head set, by this transformed into sound waves, and delivered to the ear of the person or persons under examination who hear as if by telephone. All the necessary electrical energy is developed in the magnetic reproducer. No batteries or other outside sources of electrical energy are required.

Tests of up to and including forty persons simultaneously are possible by using multiple telephone head sets. The telephone head sets are provided in No. 4-A receiver holders. Each receiver holder is an eight compartment tray, on which each compartment holds a telephone headset for one person. The eight telephone head sets in each receiver holder are connected by a single cord which is plugged into the audiometer. Five of these receiver holders can be connected to the audiometer at a time, thus accommodating the maximum number of persons.

### RECORDS

The records employed with the No. 4-A audiometer are made especially for use with this instrument. They are so arranged that the intensity of the sounds (numbers) transmitted to the listener's ear decreases in small steps to a mininum. returns abruptly to the maximum, and then ecreases again. This process occurs four times n the playing of each side of the double faced ecord. The first two series of numbers on each ace are spoken in a woman's voice and the econd two in a man's. Each decreasing series s composed of different numbers, since repetiion would introduce the memory factor into the est. The same rate of intensity attenuation is, owever, maintained in all four series. Each ear f the patient can, therefore, be tested four times t each intensity. The determination of hearing oss can thus be made with considerable accurcy.

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For the use of those being examined, special ata sheets have been designed. They contain all the instructions necessary for their use. The listener writes, on these special forms, the numbers heard. thus indicating the sound intensity at which intelligibility ceases. This intensity determines the person's acuity of hearing.

Results obtained from audiometer tests in Omaha up to April 15th, show 6,469 children examined. Four hundred and fifty-five or 7.7% of these children show definite defects in hearing. Six hundred and ninety or 10.6% were borderline cases who need further investigation. Boys and girls were about equal among the defectives; a few more boys than girls.

Schools attended by children of foreign born parents and schools in the poorer districts had larger percentage of deafness than other schools. Inasmuch as there are about forty thousand public school children in Omaha these figures show that the work here is only in the beginning, so that complete statistics on the survey will not be available for some time.

The audiometer tests as outlined can be carried out by a school nurse or anyone interested in this work. In small communities this work could be done in counties or districts, depending on the school population of the area. A state wide survey would of course be of much more benefit than a city survey.

Parents of children who are found to have defective hearing should be notified and advised to take the child to their physician. After detecting a hearing defect the physician must determine the type of lesion, the causes, and whether or not the lesion is amenable to medical treatment.

Mild forms of hearing defects in childhood usually follow repeated head infections. Adenoids, infected tonsils, hyperplastic and suppurative disease of the paranasal sinuses are frequent causes of ear disease. High arched palates, deviation of the nasal septum, irregular and abscessed teeth, hay fever and other forms of nasal allergy are sometimes responsible for a hearing defect.

Acute and chronic middle ear abscesses and mastoiditis are often followed by partial deafness. Nose blowing habit and swimming play a part in the causation of ear trouble. All of these conditions can be prevented and relieved

A few statements about the foregoing remarks. Adenoids, infected naso-pharyngeal lymphoid masses, are the most common cause of partial deafness in childhood. The fact that adenoids have been removed does not exclude this etiological factor, because adenoids frequently recur in spite of the skill of the surgeon who removed them. Careful examination of the naso-pharynx will reveal this.

When an acute abscessed ear discharges for more than three weeks there is every reason to suspect that there is involvement of the mastoid and surgical intervention should be considered to prevent a chronic discharging ear and resulting loss of hearing.

Many cases of ear disease and deafness are directly due to improper blowing of the nose. It is considered proper to take one's handkerchief and completely cover a blow by pinching both sides of the nose and blowing into the handkerchief. The amount of force worked up for such a blow is several pounds air pressure and before that pressure is released through the nose some of this air contained in the naso-pharynx is forced through the Eustachian tubes into the middle ear.

One should not pinch shut the wings of the nose but should blow through both sides of nose with the handkerchief held in front of the nose. If this is not effective the method of the tramp should be used; hold one side of nose closed and blow through the opposite side.

Swimming has become a problem to the ear, nose, and throat specialist. Man is not at this stage of civilization a water animal. Perhaps at one time he was. We find that animals whose habits demand swimming and diving are equipped with valves in their nostrils and their external auditory canals which prevent water from rushing into the nose and ears when diving and swimming. Expert divers and swimmers learn to exhale through the nose when under water; this compensates somewhat for the lack of valves in the nostrils.

Swimming pools treated with chlorine are a menace to the nose, sinuses and ear, of those suffering from acute or chronic nose and sinus diseases. The chlorine in the water is very irritating to mucous membrane and an already existing infection of the mucosa is stirred up by this irritation. Fresh lake water and the salt water of the ocean is much less irritating.

Recently some reports have appeared in the literature on pre-natal medication as a possible etiological factor of deafness in the new-born and H. Marshall Taylor of Jacksonville, Fla., has shown that quinine administered to a pregnant woman can produce deafness in the offspring. Taylor claims that many cases of deafness in the new born are due to pre-natal medication and not all are due to syphilis.

What about the responsibility of the physician to the hard of hearing patient whose lesion is not amenable to medical treatment? The responsibility of the physician to the patient should not end with the medical care. He must be in a position to advise him on many things non-medical, such as the regulation of his social life, the amount of time he spends at his business, the hours he should spend at play, etc. The success he gains with his patients depend greatly on the personal element he can throw into the case.

The personal element plays a bigger part with the hard of hearing than in almost any other type of individual. Here we are dealing with a class of patients who are peculiarly sensitive and who can be benefited only by one who shows a personal interest.

Should we dismiss these unfortunates with the thought that nothing can be done for them or as is too often said, "Perhaps he will outgrow it?" Certainly not. We should be honest with them and tell them that there is no local treatment to our knowledge that will bring back their hearing, but we can tell them what to do for themselves.

The sympathetic appeal of a crippled child is tremendous. This is evidenced by the large sums of money donated for relief of these unfortunates. A child that can not play and romp with other children is pitiable. The hard of hearing child is not handicapped in this manner. But—when the crippled child grows up to manhood the pictures, as compared to the deafened has changed. The cripple may yet be as pitiful to look upon but he has had the advantage of being with those who speak. He has heard and enjoyed social contacts, while the deafened person may be the real shut-in or perhaps a shut-out.

The hard of hearing having been born wit normal ears, acquired a language, through th natural method of imitation, the same as norma hearing persons. The psychological reaction o the hard of hearing is that of one who is con scious of having possessed something and lost i They carry the memory patterns of the hearin world. These hard of hearing children must b educated. They have been found to be as intelligent as the child that has normal hearing.

Therefore the hard of hearing child should b educated along with normally hearing children They should be in the same school classes as normal children and should take exactly the sam school subjects, but in addition should be give special work in lip reading. Two half hour periods a week of instruction in lip reading and home room teacher who has a proper realizatio of her pupils' handicap will in most instance keep the hard of hearing child in school and u in his class work. These children should not be segregated. They need the association of normally hearing and speaking children.

Lip reading is a boon to the hard of hearing not only the children but also adults. One should not wait until they are totally deaf to begin the study of lip reading. A case of progressive deafness should be advised to take up lip reading as early as the diagnosis is made.

A few remarks about mechanical aids for hearing. The present battery type of hearing devise while in its infancy is of benefit to many who are deafened. The manufacturers of these machines are cooperating with Otologists and are trying to produce standardized machines. Intrinsic noises have almost been eliminated in the newer phones, thus relieving the wearer from that nerve wrecking experience. These phones benefit only those whose nerve of hearing is normal or near normal; in other words those who are afflicted with obstructive type of deafness. The bone conduction type of ear phone seems to be gaining in popularity with this type of patient.

Finally let me speak about clubs for the hard of hearing. The American Federation of Organizations for Hard of Hearing was founded in 1925. The late Dr. Wendell Philips, a past president of the American Medical Association was one of the founders and the first president. This organization had as its purpose, the dissemination of knowledge to and grouping together of hard of hearing persons. Leagues or chapters of the parent organization were established throughout the country.

It has been my pleasure to be associated with the Omaha League for several years and I have been delighted in watching these people who are hard of hearing enjoying lectures, book reviews and other interesting programs. The League furnishes free lip reading instruction to their members. They own a microphone and headsets. They have their social hours and hours of education. They are interested in their problems and are anxious to overcome these problems in themselves and in the others who are similarly afflicted.

It would seem only right, that the medical profession as a whole, should do their part in the prevention and amelioration of deafness. Seventy-five per cent of deafness can be prevented by proper medical and surgical treatment. The problems of the other twenty-five per cent can be ameliorated by proper education and advice.

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# BOWEL OBSTRUCTION*

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Bowel obstruction still remains one of the most serious problems in medicine and surgery. In the past and up until recent years very little progress had been made in the care and management and the operative procedures in this condition. As I look back over our experience—twenty-five years and even less—they stand out in a class by themselves representing about 100% mortality. In those days and even yet many times intestinal obstruction (and I refer particularly to low small bowel obstruction) was considered an emergency operation, and these patients, with little regard for the stage of the disease or physical condition, were subjected at once to a serious exploratory operation in an attempt to locate the obstruction and to relieve it, and, of course, under such treatment most of the patients died.

What has been done and what can be done to lessen the mortality in these cases?

First: The diagnosis must be made early while the mechanical obstructive symptoms are simple, clearly evident, but no serious local damage or general symptoms of a toxic character.

Next and equally as important is a proper evaluation of the patient's condition by the surgeon and graded operative procedures of the simplest magnitude instituted until further surgical steps may be safely carried out.

It is convenient and makes for a better understanding of the condition of obstruction if we divide the disease into two periods or stages. The first stage is purely a mechanical problem with distention, but peristalsis still active, and no toxic changes within the bowel. The second stage or period may be considered the period of degeneration which, from the obstruction and the efforts of overcoming same the bowel wall has become overdistended, paralytic, hemorrhage within the loop, and toxic material produced.

When we view the condition of obstruction in these somewhat distinct yet overlapping periods it is obvious that any attempt at relief in the degenerative stage when distention and paralysis of the obstructed bowel is present with profound toxemia, is not only ill-advised but hazardous and this is the stage or period in which the surgical mortality is tremendously high. In the past and even yet it is in this degenerative stage that most of these obstruction cases have been subjected to radical surgical relief with about the highest mortality of operative surgery. In the first or early obstructive stage it is purely a mechanical problem. There are no chemical blood changes and the patient's condition is as a rule reasonably good. It is in the second stage or period of degeneration in which the toxemia is increasingly profound and in which the various chemical laboratory blood changes are evident. (Chemical laboratory findings are of little use in the early diagnosis of intestinal obstruction.) The diagnosis must be made early and by careful clinical observation and examination.

What measures can we take to lessen the mortality in this disease?

First: Early diagnosis.

Second: Timely graded surgical procedures.

Our experience, and particularly during the last five years in which almost 2,500 major operations have been recorded in which 2.25% were low intestinal obstruction cases from various causes, has compelled us to view the situation in a rather conservative way. That is, for several years now we have not subjected these obstruction cases to an immediate extensive abdominal search in order to determine the cause of the obstruction and relieve it. In the early stages it is our opinion that no one is able to definitely say whether the obstruction is partial or complete and we have made it a rule to apply the graded surgical relief to *all* cases.

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*Presented before the Elkhorn Valley Medical Society meeting, Norfolk, Nebr., August 22, 1935.

By this I mean: A careful estimation of the patient's condition and his reserve is made. Many of these patients appear to be in good condition and one is tempted to proceed with the complete operation at once. Our greatest regrets and errors in judgment have been made because the good appearance and apparent condition of the patient fooled us into the radical relief operation. We have never regretted the minor decompression as a first step. By decompression I refer to the trans-nasal duodenal tube for the relief of the stomach and upper duodenum and an enterostomy done under local infiltration in an aseptic manner in the lowest distended loop of the bowel presenting. No intra-abdominal manipulations whatever. Quickly in and quickly out has been the rule.

It is surprising what improvement these patients in the obstructive stage present by this sort of a decompression. The bowel regains its normal tone, distention disappears, and in many obstructions—particularly of the acute post-operative plastic adhesive type—nothing further has been necessary. Many of these have gone several years with no recurrance whatever of their obstructive symptoms. Every surgeon of experience knows that these postoperative plastic adhesions very often tend to spontaneously disappear.

In the late or degenerative stage of obstruction we do not expect much from this decompression because they have passed from the stage of normal bowel tone into one of over-distention and paralysis with a profound toxemia. Nevertheless we always carry out these procedures. The mortality is tremendously high, but there is no added shock from the procedure, the patients are made more comfortable, and are given a fighting chance for life.

Patients in the obstructive period where enterostomy has been done and decompression has been established are observed closely for improvement or any changes in their condition, and as they improve through the administration of fluids and salines for maintaining the water and chemical balance, careful decision is made as to further operative procedures for relief of the obstruction. Following such decompression the patients in twenty-four or forty-eight hours are in a condition to withstand the major operation with a reasonable degree of safety.

We feel from our experience that we have carried many patients through to recovery in this way whereas by the older method the mortality would have been discouragingly prohibitive. We do not claim that decompression in the early stage of obstruction is a cure-all for the condition, nor is it a cure particularly for complete strangulation obstruction; but it is a safe and sane measure to institute in any and all cases and gives the medical and surgical attendant ample time for evaluation of the patient's condition for other manipulative measures and procedures.

In recapitulation I wish to emphasize first, that enterostomy should not be expected to be successful if the intestine is paralyzed. It is indicated early to drain a distended intestine of gas and liquid to prevent over-distention and paralysis.

Secondly, an early diagnosis by the attending physician.

Third, the simplest graded surgical procedure which is decompression by enterostomy done under local infiltration supplemented by trans-nasal duodenal suction and general supportive measures by salines, etc.

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## BLOOD UREA NITROGEN BY DIRECT NESSLERIZATION

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This method is presented because it is easy, simple, and quick; and because it gives results well within the limits of accuracy required for clinical dependability. It has been used by the writer in his office and hospital laboratories for six years in place of the old and vastly cumbersome aeration method, and no cause for dissatisfaction with it has ever been found. It has been repeatedly checked, usually as the result of criticism, by numerous control determinations such as those given below. It is felt that the facility of the method will encourage the performance of more nitrogen chemistry in laboratories where time and effort are a major consideration.

Briefly, the method consists in permitting the urea-transforming enzyme to act in fresh, whole blood; precipitating the proteins after the enzyme action is finished, and Nesslerizing the protein filtrate. It has been found, that, to secure the urease action in whole blood to the complete transformation point of the urea, a high concentration of the enzyme is necessary. This result is obtained by the utilization of a highly purified product. Hynson, Westcott, & Dunning's *urease* tablets have been used almost exclusively in this work. In order to secure the maximum of speed of reaction, a relatively high temperature is required. Neither the urease reaction nor the precipitation have been found to have any quantitative effect on the urea-nitrogen content of the blood.

The technic of the method is as follows:

Place 2 cc. of oxalated or citrated blood into a 15 cc. graduated centrifuge-tube.

Add two or three commercial urease tablets dissolved in 2 cc. of distilled water.

Incubate in a water-bath at 50° C for one hour.

Add 5 cc. of distilled water and mix thoroughly; wait until hemolysis has occurred.

Add 2 cc. of approximately 2/3 normal sulphuric acid.

Allow to stand until it has become a chocolate-brown color, without any trace of pink (failure or delay in the change of the hemoglobin red to chocolate-brown is due either to too low a temperature or to insufficient concentration of sulphuric acid).

Make up volume to exactly 15 cc. and mix thoroughly.

Filter or centrifuge. Use 7.5 cc. of filtrate or supernatant fluid.

Nesslerize filtrate or supernatant fluid directly by adding diluted (1:5) Nessler's solution to maximum color. This will require about 5 cc.

Dilute to a color which is workable in the colorimeter; this is most frequently from 30 to 50 cc. for total volume.

In this laboratory, where the Klett colorimeter is used, the unknown is read directly against the glass nitrogen standard. The reading must be multiplied by the glass-correction, 0.95, before calculation; i. e., the reading x 0.95 = R.

Calculation: 15/R x dilution=mgm. of urea nitrogen per 100 cc. of blood.

Where the Duboscq type of colorimeter is used with a made-up standard containing 1 mgm. of urea per 5 cc., the calculation is as follows:

S/R x 100/5 x dilution=mgm. of urea nitrogen per 100 cc. of blood.

"Dilution" refers to the total volume of the unknown, including the nitrogen-containing blood filtrate and the Nessler's solution.

Nessler's solution destroys the activity of the urease.

The following tables represent the most recent series of control tests performed on this method. They are quite typical of numerous similar determinations performed during the six years in which the method has been in use. In these control tests, the direct-Nesslerization method was checked against the aeration method on whole blood, on accurately made up urea solutions, and on whole blood plus accurately weighed amounts of urea.

### TABLE A

SINGLE BLOOD SAMPLES; GM. UREA N PER 100 CC.

| Specimen | Direct Method | Aeration | Difference | Per Cent |
|---|---|---|---|---|
| 1 | 11.50 | 11.00 | +0.50 | +5 |
| 2 | 9.50 | 8.89 | +0.61 | +6 |
| 3 | 10.77 | 10.75 | +0.02 | 0 |
| 4 | 12.00 | 12.60 | —0.60 | —5 |
| 5 | 9.00 | 8.50 | +0.50 | +6 |
| 6 | 22.22 | 24.00 | —1.78 | —6 |
| 7 | 31.10 | 30.00 | +1.10 | +3 |
| 8 | 55.00 | 52.27 | +2.73 | +4 |
| 9 | 17.05 | 16.01 | +1.04 | +6 |
| 10 | 27.43 | 25.70 | +1.27 | +3 |

In Table A, the average of the differences between the direct and aeration methods is +2.2% and the median is +4%. The direct method gives more results which are higher than those of the aeration method, than it does lower results. In no case has any individual difference been sufficient to affect the clinical interpretation of the determination.

### TABLE B

WEIGHED UREA SOLUTIONS; UREA-N MGM. PER 100 CC.

| Mgm. Urea-N Per 100 cc. (Urea 2.12) | Direct Method | Aeration | Difference | Per Cent |
|---|---|---|---|---|
| 9.00 | 9.30 | 9.00 | +0.70 | +7.0 |
| 10.00 | 10.00 | 10.06 | —0.06 | —0.6 |
| 11.00 | 10.96 | 10.90 | +0.06 | +0.6 |
| 20.00 | 20.00 | 20.00 | 0.00 | 0.0 |
| 30.00 | 29.98 | 29.85 | —0.13 | —4.0 |
| 40.00 | 39.95 | 39.98 | —0.03 | —0.7 |

In Table B, the average of the differences between the direct method and the aeration method is 2.5%, and the median is 0.6%. The latter figure is well within the limits of experimental error in the average clinical laboratory. The distribution of differences indicates that they are due, not to any inherent characteristics of the two methods, but merely to manipulative error.

### TABLE C

BLOOD PLUS UREA; MGM. UREA-N PER 100 CC.

| Blood Urea-N |  | Plus 5 mgm. Urea-N Per 100 cc. |  | Difference |  | Deviation from 5 mgm. |  | Deviation % Referred to Total Urea-N |  |
|---|---|---|---|---|---|---|---|---|---|
| Direct | Aeration | Direct | Aeration | Direct | Aeration | Direct | Aeration | Direct | Aeration |
| 11.50 | 11.00 | 16.30 | 16.50 | 4.80 | 4.50 | —0.2 | —0.5 | —1.00 | —3.00 |
| 9.50 | 8.89 | 14.45 | 14.00 | 4.95 | 5.11 | —0.05 | +1.11 | +0.00 | +0.13 |
| 10.77 | 10.75 | 16.00 | 15.70 | 5.23 | 5.05 | +0.23 | +0.05 | +0.05 | +0.03 |
| 55.00 | 52.27 | 61.00 | 57.00 | 6.00 | 4.00 | +1.00 | —1.00 | +2.00 | —1.80 |
| 17.05 | 16.01 | 22.20 | 20.70 | 5.15 | 5.69 | +0.15 | +0.69 | +0.05 | +3.00 |
| 27.43 | 25.70 | 32.40 | 32.40 | 4.26 | 6.70 | —0.73 | +1.70 | —2.00 | +0.55 |

In Table C, the average deviation from the amount of the nitrogen in the accurately weighed urea, was 0.8%, and the median 1%. These results lie within the same limits as those shown in the preceding tables.

### SUMMARY

1. A simple method of determining blood urea nitrogen by direct Nesslerization is reported.
2. The essential features of the method are:

permitting the catalytic reaction to take place in the fresh whole blood; precipitating the proteins when it is over, and Nesslerizing the filtrate.

3. The distribution of the variations in the results produced by this method from those obtained by the aeration method, indicates that they are due to manipulative error only.

William J. Bryan Memorial Hospital, Lincoln.

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# SELF-RETAINING MALE CATHETER

ROBERT COHEN, B. S., M. D.,
St. Francis Hospital,
Grand Island, Nebraska.

This instrument is introduced with the idea of lessening the trouble of both patient and doctor, in keeping a retention catheter, as a retention catheter, in its proper place.

Every physician who has inserted a catheter with the purpose of using it as a retention type has encountered many of the conditions discussed below:

The great majority of catheters are held to the penis by means of strips of adhesive tape from the catheter over the glans, prepuce, shaft and even to the pubic area. A few days after the taping, a mucoid or pus discharge from the urethra appears. It works itself under the adhesive and soon the tape becomes wet, loses its original shape, and becomes dissected loose from its attachments, resulting in the catheter slipping out and defeating the purpose of its insertion.

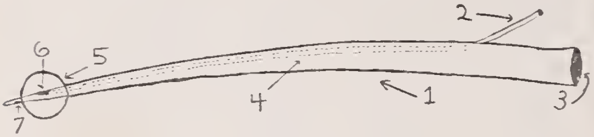

FIG. 1.

1. Regular rubber catheter 18 or 16 French.
2. Rubber Catheter 4 French passed through tiny slits in large catheter and vulcanized in. Balloon is inflated through this.
3. End of large catheter left free for drainage, and for bladder irrigations.
4. Regular rubber catheter 4 French inside of larger catheter.
5. Balloon of thin rubber vulcanized around large catheter just below the eye.
6. End of small catheter passed through larger catheter into balloon.
7. Eye of large catheter through which the urine flows from bladder.

There is the small or infantile-like penis which lacks enough space for good taping. The catheter slips out due to a lack of certain firmness for the tape to stick.

The type of penis having redundant prepuce does not allow a firm grip of the adhesive to hold the catheter in a permanent position. The smegma coming from underneath the foreskin also aids in loosening the adhesive and defeats the catheter's purpose. Paraphimosis and phimosis also offer obvious handicaps.

Occasionally cases of priapism occur on the catheter and the head is tightly rammed into the taped portion sometimes cutting into the meatus resulting in pain, due to a lack of space to extend itself by the limitation of the tape.

My first attempt to keep a urethral catheter in place was a failure. Using a large ring to envelope the base of the penis, I taped it to the pubic area and from it came a flexible, firm and crane-like light metal, protruding parallel to the penis and the distal end held the projecting portion of the catheter. However, the penis would relax and the catheter soon would be found out of the organ.

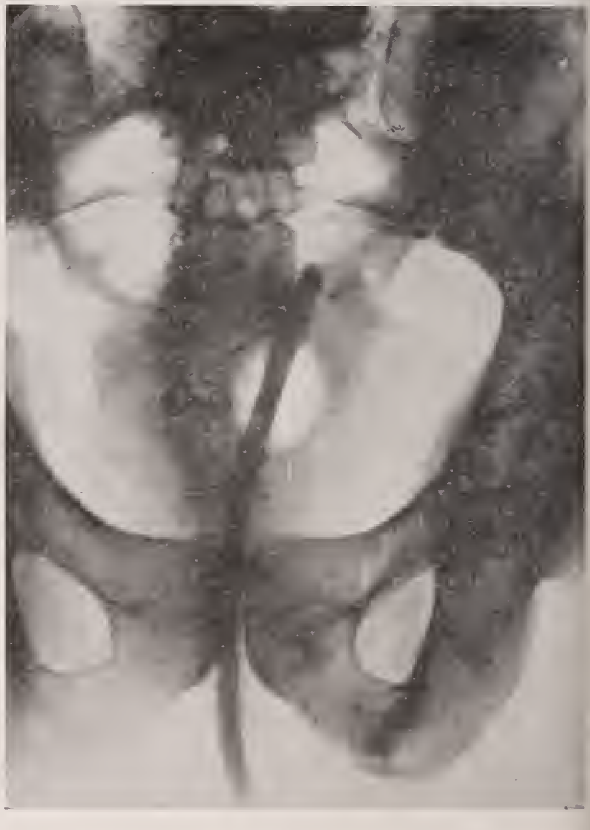

FIG. 2. Showing catheter in bladder with bag inflated.

A catheter to overcome these factors must be held from behind the prostate and in the bladder. Hence, we* decided on passing an ordinary French or prostatic catheter into the bladder and nflate a balloon attachment after it was inserted in the bladder giving it a firm suspension. This resulted in overcoming all the aforementioned handicaps.

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*Dr. B. R. McGrath and the author, Grand Island, Nebr.

Our working model was made from an 18 French catheter and an infant No. 4 catheter. The infant catheter was inserted into the larger one, coming out about a half inch behind the eye of the larger catheter on surface level and also a few inches in back of the cornual end.

This infant catheter was vulcanized into the balloon area. Our small balloon was made from a finger of a rubber glove and vulcanized at the bladder end of the catheter making it air tight, and preventing the urine from entering in.[*]

Due to the balloon portion being collapsed and therefore airless, it was very easy to insert this type of catheter. Ordinary, sterile, lubricating substance was used and no pain or difficulty was encountered in the insertion. 15 cc. of air from a small syringe was pumped through the infant catheter and a pinchcock was used to clasp the infant catheter and to retain the air. A sterile towel was placed between the scrotum, the penis and along the catheter portion. The larger catheter was attached by tubing to a jug under the bed. To remove the catheter release the pinchcock.

The roentgen picture shows the inflated balloon in the bladder in actual use. The other photographs illustrate the principle of the catheter.

By this device all the afore-mentioned handicapping factors were satisfactorily overcome.

### CONCLUSION

The principle of a catheter, within a catheter, attached to a balloon was used to make a self-retention male catheter.

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## A FURTHER REPORT ON THE SCHILLER LUGOL TEST OF THE CERVIX UTERI[**]

R. J. STEARNS, M. D.,
Omaha, Nebraska.

At the state medical meeting in May, 1934, I reported some two hundred cases that we checked with the Schiller Lugol test of the cervix uteri with no positive findings.

I sent a report of this work to Dr. Walter Schiller in Vienna, and in his reply of May 5, 1935, he states that he has made the test on as many as two hundred cervices without finding a positive carcinoma, then might find two or three in the next few examinations. He also re-emphasized that every area not taking the stain is not necessarily carcinomatous but about one in ten is definitely cancerous. We have not made the test on quite so many cervices during this past year, but we have had the rare good fortune to have picked up the very earliest carcinoma of the cervix by means of this test.

### CASE REPORT:

Mrs. V. G., age 22, was first seen at the University of Nebraska Dispensary on April 3, 1934. She had always been quite normal in her menstrual life though never pregnant. Her chief complaint was an excessive vaginal discharge for the past seven months of a sero-purulent nature and non-irritating. On examination nothing was found abnormal, with the exception of a circular erosion of the cervix and several evident Nabothian cysts, thus indicating a chronically infected cervix. She was treated with the electric cautery, using the strip method of cauterization as well as puncturing the cysts. She received six treatments during the next three months. Five months after her first treatment the erosion was healed, the cervix appeared quite normal, and the patient was having very little discharge. She returned in a month with no symptoms but for a check up, and at this time a Lugol test was made and revealed three small millimeter areas that did not take the stain and appeared a dull white. This test was done at monthly intervals for the next two months, and the same areas did not take the stain. This area was then removed on December 12, 1934, going well beyond the suspicious area and a few millimeters deep. This was done with no anesthesia and with little discomfort to the patient. The tissue was examined by the Pathological Department of the University Medical School with the following report:

> "A small fragment of tissue showing nothing characteristic grossly. Many sections of tissue show early infiltration of fibrous tissue by some masses of irregular squamous epithelial cells. There is fair differentiation although several mitotic figures are found. This is a very early epithelioma apparently still in the stage of local infiltration.
>
> "Diagnosis: Epithelioma of the Cervix Uteri."

One month later the cervix was nicely healed and was negative to the Lugol test. In all probability nothing further would need to have been done. From a scientific point of view it would have been very valuable to have followed this patient for several years and to have noted the end results. We, however, treated her further by doing a high cervical amputation on February 19, 1935, and a series of x-ray treatments for sterilization. She was examined last on May 25,

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[*] The Davol Rubber Co., Providence, R. I., in a personal communication stated there was still a problem in making a suitable, firm balloon for the bladder end of the catheter.

[**] From the Department of Gynecology, University of Nebraska College of Medicine.

1935, and the cervical stump was well healed and negative to the Lugol test. I think she will have no further trouble from this source.

I am still using this very valuable test in the Gynecological Clinic at the University of Nebraska, as well as on all my private patients, and think it should be used by every physician making cervical examinations.

### CONCLUSIONS:

The Lugol test should be repeated at several different examinations, and if the same small millimeter areas persist in not taking any stain then the tissue should be examined microscopically.

In obtaining the tissue for biopsy enough normal tissue on all sides and below should be obtained.

Many serial sections may be necessary to definitely rule out malignancy.

Even though a certain per cent of these conditions which are microscopically suspicious of carcinoma may never develop into true cancer, yet I think we are amply justified in removing these suspicious cervicies in view of the future tragic possibilities for these women.

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## RUPTURED ANEURYSM OF THE ABDOMINAL AORTA—II

### CLINICO-PATHOLOGICAL CASE REPORT

**From the Museum of the Lancaster County Medical Society.**

Mr. W. C., a white male, age 66, had been in good health until the day of admission, October 16, 1934. At 2 a. m., the day of admission, he was suddenly awakened with a severe pain in the left flank which radiated to the testicle and penis. His physician administered an opiate and had him brought into the hospital. At the time of admission he was semicomatose. The skin was moist and clammy, the blood pressure was 50/40 and the pulse was 68 and very weak. The heart was somewhat enlarged to the left, and, aside from an occasional extrasystole, was otherwise not remarkable. A single flat film of the abdomen showed no evidence of calculus. Following admission the coma deepened and death occurred in a few hours.

At autopsy which was performed the day following death a large amount of retroperitoneal blood was found in the region of the left kidney. Further dissection disclosed the fact that the source of the hemorrhage was a rupture of a large saccular aneurysm of the abdominal aorta which began just below the celiac axis and extended to the bifurcation. The perforation had taken place posteriorly and laterally and the opening admitted the tips of three fingers. The aneurysm measured 6 by 11 cm. The perirenal fat and the soft tissues about the left adrenal were infiltrated with blood. The left ureter passed through the mid-portion of the large retroperitoneal hemorrhage. The sac was lined with laminated blood clot and the only evidence of dissection was at the site of perforation. The associated pathology may be summarized as follows: Healed pulmonary tuberculosis; hypertrophy and dilatation of the heart; coronary sclerosis; arteriolosclerosis of the kidneys (early) benign prostatic hyperplasia; healed duodenal ulcer; diverticula of the colon; atrophy of one testicle and fatty metamorphosis of the liver.

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## CARCINOMA OF THE CECUM: WHAT ARE THE CHANCES FOR CURE?

Claude F. Dixon, Rochester, Minn. (*Journal A. M. A.*, Nov. 24, 1934), believes that when one attempts to collect data on the curability of disease by determining the length of time a patient has lived—for example, following resection of the cecum for carcinoma—it is important to keep in mind that the patient who is apparently relieved of such a malady may succumb to another disease before sufficient time has elapsed to determine whether or not the original disease may recur. Therefore, the normal death rate is to be kept in mind. Of 221 cases of carcinoma of the cecum operated on at the Mayo Clinic from 1907 to 1928 inclusive, resection was performed in 145. Of these 145 patients, sixty have lived five years or longer following resection. The three outstanding features with regard to the observations in these sixty cases are that practically all the patients had lost weight markedly, secondary anemia of varying degree was present, and a mass could be palpated in the right lower abdominal quadrant. The duration of symptoms varied from a few weeks to many years. Prognosis varies with metastasis and grade of malignancy. Involvement of lymph nodes was found in fifteen of the sixty cases. The finding of involved lymph nodes justifies a guarded prognosis; however, absence of this finding does not necessarily rule out regional extension or metastasis. Obviously a lesion of low grade of malignancy justifies a better prognosis than one in which malignancy is of higher grade. The growths in the majority of the cases on which this report is based were of grade 2. Only three growths were of grade 4. One of the patients whose lesion was graded 4 was alive 22.2 years following resection, even though lymph nodes were involved. There are ten patients living from fifteen to twenty-two years following resection, seventeen living from ten to fifteen years and thirty-three from five to ten years. The discrepancy in the duration of symptoms and the variability of symptoms account to a considerable degree for the inability to make an early diagnosis in a high proportion of cases of carcinoma of the cecum. Patients of middle age with unexplained, severe, secondary anemia should bring to mind, however, the possibility of a malignant condition of the right half of the colon. These features, and a history of intestinal disorder, justify investigation of the large intestine as a possible source of trouble. The surgical treatment of carcinoma of the cecum consists, obviously, of radical removal. The type of resection of the right half of the colon to be selected is largely a matter of individual opinion. The patient with a malignant lesion of the cecum, whose general condition is good, may well be a fit subject for resection in one stage. Recently it has been the author's practice to employ the operation in one stage in treatment of those patients of middle age whose loss of weight has not been marked. The accompanying anemia, unless extremely severe, usually can be remedied by blood transfusion twenty-four hours before operation. The choice of the type of anastomosis to be made between the ileum and the transverse colon, following resection of the right half of the large intestine, depends again on the individual surgeon and on his experience with the methods he advocates. Temporary ileostomy of the Witzel type serves as a worth while safeguard against distention from intestinal gases in any type of intraperitoneal resection of the right half of the colon. The preparation of patients who are to undergo surgical procedures on the large intestine has lessened appreciably the mortality rate and also has made for a more uneventful convalescence. In brief, such patients are hospitalized four or five days before operation. During this period, their diet consists of 2,800 calories a day, of foods of lowest residue, principally carbohydrates, such as candy, fruit juices, custards, gelatin, rice, eggs, thin soups and broths. Seventy-two hours before operation, an intraperitoneal injection of vaccine, prepared from streptococci and organisms of the type of colon bacilli is carried out. Although this procedure does not prohibit entirely the occurrence of peritonitis, it has lessened markedly its incidence.

## THERAPY OF COOK COUNTY HOSPITAL: THERAPY OF CARBUNCLE

Bernard Fantus, Chicago (*Journal A. M. A.*, Oct. 6, 1934), in his report of the therapy of carbuncle as it is practiced by the attending staff of the Cook County Hospital, states that carbuncle is a deep seated intradermal staphylococcic infection, which differs from furuncle in being characterized by multiple foci of necrosis and terminating in gangrene. Because of the radical difference of treatment, malignant pustule or anthrax, must be differentiated from carbuncle. There is no use in wasting time with hot moist dressings. Roentgen irradiation may be of value if the case does not seem ripe for radical treatment. Crucial incisions are made, excepting in carbuncle of the lip, which is treated like furuncle of the lip. Under general anesthesia the indurated area is incised from sound skin to sound skin through the derma and down to the deep fascia. The points of skin are raised with toothed forceps and the subcutaneous trabeculae are severed. The points of the skin flaps and necrotic tissues are excised, leaving a wide opening for drainage and the extrusion of the slough. Pockets containing necrotic material that cannot be exised are curetted. The cavity is then cauterized with liquefied phenol, which is removed after a minute by means of an alcohol-saturated tampon. The cavity is packed with iodoform gauze and hot boric acid dressings are applied. The ulcer remaining after the sloughs have been discharged is treated in accordance with general principles. Until surgical treatment can be applied and when it is contraindicated, the magnesium sulphate-phenol paste dressing gives some relief and tends to convert the moist into dry gangrene. Absolute rest in bed and of the affected part is essential. Nutritious food should be given and morphine administered as required for pain. For prevention of recurrence, the same methods are employed as in the prophylaxis of furuncle.

## JEJUNAL ULCER

Roscoe R. Graham and F. I. Lewis, Toronto, Ont. (*Journal A. M. A.*, Feb. 2, 1935), base their remarks on jejunal ulcer on their observation of forty-three cases, of which a careful and exhaustive follow up of the patients who have been submitted to a gastro-enterostomy shows a much higher incidence of jejunal ulceration than is usually suspected. A persistent gastro-intestinal disability in a patient who has had a gastrojejunostomy demands a careful and thorough investigation. Roentgen investigation of such patients is more efficient if the clinician and radiologist cooperate as a team. Jejunal ulceration is a surgical lesion, and operation should be urged as soon as the patient's condition permits, provided the diagnosis is thoroughly substantiated. Block resection of the stomach and jejunum, with end-to-end anastomosis of the jejunum, and either a Billroth I or retrocolic Polya reconstruction of gastric continuity is the ideal procedure. A barium enema should be a routine procedure in the investigation of any patient suffering a gastro-intestinal disability after a gastro-enterostomy. The ideal operation for a gastro-jejunocolic fistula is a block resection of stomach, jejunum and colon, with triple anastomoses, together with a cecostomy.

# The Nebraska State Medical Journal

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## CALL FOR PAPERS

*Anyone wishing to present a paper at the annual meeting in 1936, please send name and title of paper to the Secretary, Dr. R. B. Adams, Center McKinley Bldg., Lincoln, Nebraska.*

## CALL FOR DUES

*Your annual dues become payable January 1st, 1936. Due to the fact that an Executive Secretary has been employed the dues have been raised to $10.00. So please send $10.00 plus the amount of your local County Society dues to your County Secretary. These dues become delinquent January 31st, 1936.*

## FIRST OF ALL YOUR MEDICAL SOCIETY

Man cannot live unto himself alone; he needs the companionship, assistance and friendly counsel of others. The physician cannot successfully follow "lone wolf" methods and attain the greater success to which his education and talent entitle him. He needs the friendship, counsel and assistance of other physicians. Just as organized society is a necessary part of civilized life, so is medical organization necessary to the greater success of physicians as individuals.

Your golf club, your lodge and your medical society; *but first of all your medical society!*

## THE TEN DOLLAR DUES

Probably every member of the Nebraska State Medical Association knows that the house of delegates at the last annual meeting in Omaha raised the annual dues to the state association to $10.00, effective January 1st, 1936.

Some of us, realizing the present economic struggle, thought the time inopportune for an increase of dues, however much we felt the need of greater activity in organizational affairs. But the measure was carried by the house by a considerable majority; we cheerfully bow to the majority.

The money is sadly needed to pay the services and expenses of the traveling executive secretary who is devoting his best efforts to the strengthening of the association.

No one need be told that State Medicine is staring us in the face and that our present efforts come none too soon if the monster is to be beheaded.

No reasonable or right thinking person will begrudge the association the additional dollars to be used in furthering his own interests in his chosen profession.

Scarce as dollars have been in recent years there is not one of us who has not spent as much as five dollars during the past twelve months foolishly, or at least for something one could have done without.

The good of our profession must be our first aim.

We must go to battle and we must win—and it takes dollars to win.

Be good sports and pay cheerfully — and promptly.

## MEDICAL GLEANINGS FROM A TRIP TO THE SOUTHWEST COAST

The first impression the observant medical man gets in southern California is that there are more superannuated candidates for the cemetery than to be seen in any other section. Their presence depresses and haunts you! Go to California to live?—Go there to die!

But southern California is nice to visit. Everything is different—exotic, semi-tropical.

This was our fourth trip; the first one in 1911 as a delegate to the American Medical Association meeting in Los Angeles, which city then boasted of 300,000 people—now a million and—

At Hollywood, medical friends, former Omahans and Nebraskans, gathered at a luncheon to greet and to reminisce. Fine fellows all and doing things.

At Los Angeles we missed the irrepressible Dr. J. F. Percy—"Cautery Percy"—an acquaintance of a quarter of a century—too much running around lecturing in New York, Philadelphia, Chicago, San Francisco; but we were permitted to greet one of the most lovable men in the profession, who a dozen years ago kept us from drowning by the anasarca route—Dr. Edgerton Crispin.

At Santa Barbara we were permitted to attend several staff meetings and it may give the reader an idea of the scientific trend of the Santa Barbara profession if a few of their topics of discussion are cited: "Coarctation of the Aorta", "Larostidin Treatment of Ulcer", "Mediastinitis—Case Presentation". Here also we met the nationally known Dr. Rexwald Brown, who conferred upon us the medical freedom of Santa Barbara.

The Editor, the Publication Board and the Officers of the

Nebraska State Medical Association

extend

The Season's Greetings

and sincerely wish the Fellows of the Association and
other Readers of the Journal

A Merry Christmas and a Very Happy New Year

We had the rare privilege of meeting Dr. W. D. Sansum and of listening to one of his talks on medical research. His present greatest interest appeared to be food allergy. His conception of food allergy is that it is not an allergy but an indigestion, in most cases intestinal indigestion, due to lack of digestive ferments. He supplies the needed ferments by graduated doses of insulin and by his panteric pills, presumably an extract of pancreas and a ferment derived from the mesenteric glands—so coated as to pass the stomach to be dissolved in the duodenum. His results seem to prove his case.

Former Nebraska physicians met on trip:

W. N. Anderson, W. F. Milroy, Newell Jones, H. A. Waggener, Howard Updegraff, H. B. Lemere, Guy Desparois, all of Hollywood; F. S. Owens, Montecito; Frank B. Young, Long Beach; G. Harry Morris, Santa Maria.

## NEW POLICY OF THE AMERICAN MEDICAL ASSOCIATION

A business meeting of the Council on Medical Foundation and Hospitals was held at the Brown Palace Hotel, Denver, September 15, 1935.

According to the minutes the survey of American medical schools so far completed has revealed certain significant weaknesses; namely,

There is a tendency for medical schools to enlarge their enrollment without a corresponding increase in personnel or instructional facilities.

With a growing appreciation of the necessity for an intimate correlation between clinical and laboratory knowledge, it is evident that this can be obtained only by increasingly close contact between preclinical and clinical departments continuously maintained from the time the student first enters the medical school until he graduates.

The advances of the medical sciences have been and should be independent of any sectarian point of view, and medical education should not be handicapped or directed by a dogmatic attitude toward disease.

For these reasons the Council took the following action:

(*a*) *Resolved*, That in each medical school the number of students should not exceed the number that can be adequately taught with the laboratory, library and clinical facilities available and for whom a sufficiently large and competent teaching staff is provided.

(*b*) *Resolved*, That after July 1, 1938, the Council on Medical Education and Hospitals will no longer publish a list of approved two-year medical schools.

(*c*) *Resolved*, That after July 1, 1938, the Council on Medical Education and Hospitals will no longer carry on its approved list schools of sectarian medicine.

## FISHBEIN DISCUSSES STATE MEDICINE

In a talk given in Minneapolis recently Dr. Morris Fishbein declared it "would practically require a revolution in the United States" for the state to take over medicine. The editor of the *Journal American Medical Association* was discussing the pending federal relief survey of the health of 750,000 families.

"I am apprehensive," he declared, "that this survey will be used as propaganda on behalf of socialized medicine." He questioned the scientific accuracy of the survey to be made by persons taken from relief rolls.

Instead of socialized medicine, he suggested the "prepayment plan."

"The prepayment plan," he declared, "protects the public so far as quality of medical care is concerned by guaranteeing free choice of the best doctors and hospitals by the patient."

## PUBLICITY FOR THE DECEASED TRULY GREAT

Most of our profession must have been terribly shocked when they read in the *Journal of the American Medical Association* the notice of the death, on October twenty-second, of Dr. J. C. Bloodgood. The most amazing thing was that at no time had any of us seen any account of his passing in the press of this country.

In looking over the journalistic events of that week, we find that that week covered the time when Arthur Flegenheimer ("Dutch" Schultz, the bootlegger) was killed and the accounts of his crimes, misdeeds and finally his murder at the hands of others of his ilk, occupied about all of the spare space in our daily press.

There must be something wrong when our daily press tells us nothing concerning the passing of one who has accomplished more for the relief of human suffering, more for the prolongation of human life and who probably possessed more information about cancer than any man of our time, but who at the same time keep us fully informed on the killing of one rat by other rats.

Dr. Charles W. Elliott was so unfortunate as to die upon the same day that a former waiter in Tate's Restaurant in San Francisco died. The former waiter was Rudolph Valentino and he occupied the front pages of all of the newspapers throughout the length and breadth of the country while over on page four, right next to the Lydia Pinkham advertisement, was a one inch paragraph telling of the death of Dr. Charles W. Elliott.

Is this the fault of the press, the public or ourselves that such things occur? We should, perhaps, keep the press informed as to who our great men really are. One million Valentinos could never be of the same value as one Dr. Elliott and ten million "Dutch Schultz's" could never approximate the worth and the attainments of one Dr. Bloodgood.

**—Lucien Stark, Norfolk.**

## PROFESSIONAL MEN—BEWARE OF THIS IMPOSTOR

An impostor, posing as a representative of the Pioneer Service Company, Hastings, Nebr., but who is apparently employed by a Kansas City, Mo., collection agency, has fleeced a number of doctors and dentists in northern Nebraska within the last two weeks.

Description: Calls himself Mr. Snyder at times, is about six feet tall, well built, well dressed, a smooth talker, dark complexion, described by some "victims" as "swarthy," dark blue or brown eyes, dark wavy hair, face slightly pitted, thick lips, age about 40.

## ON THE VALUE OF PRENATAL CARE

In *Science* for October 11, 1934, we find the following:

A question as to the relative importance of prenatal care for the expectant mother was raised by Dr. Margaret Tyler, of the Medical School of Yale University. Obstetrical care at the time the child is born may play by far the greatest part in improving the outcome for the mother, a survey reported by Dr. Tyler indicated. Groups of patients receiving contrasting amounts of care and supervision during pregnancy but attended at childbirth by the same obstetrician were studied. The outcome at labor was strikingly similar for the contrasting groups, revealing no definite superiority on the part of those who had the more extensive care. The better prenatally cared for group was found to include an excess of complications of pregnancy, many of which had apparently prompted the seeking of extra care. This same group revealed an excess of complications of labor, the ratio of which to those in the poor-care group did not appear to have been markedly altered from the ratio noted in pregnancy.

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## SOME HISTORICAL ASPECTS OF TUBERCULOSIS

In the long roster of ailments to which human flesh is heir none has a more baffling history than tuberculosis. It is still one of the important mysteries of modern medicine. No specific cure for it has yet been discovered, although considerable knowledge has been assembled bit by bit through the ages by a list of men that reads like a "Who's Who" of the medical profession of past centuries. It is a curious fact that many of these great physicians had tuberculosis at some time in their lives and that several of them died of it.

PROTECT THEM

Today one of the duties of parental love is to protect children from their arch foe, tuberculosis—the greatest cause of death between the ages of fifteen and forty-five. Christmas Seals help you protect your children from this disease.

CHRISTMAS 1935

BUY CHRISTMAS SEALS
The National, State and Local Tuberculosis Associations of the United States

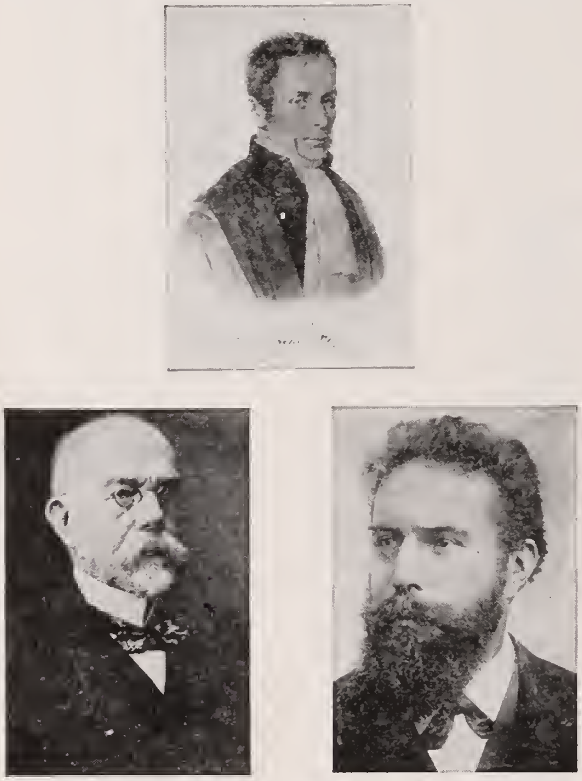
As one studies the course of this malady, one is confronted with a strange paradox. The tubercle bacillus in the human body gives rise to two distinct manifestations: the depletion of physical energy and the stimulation of mental activity. In those who are endowed with exceptional mental qualities and are at the same time suffering from tuberculosis, there often seems to be a strange psychic stimulus to creative accomplishment. In some individuals only the vision of death brings a consciousness of "the divine reality of life." It seems reasonable to say that the progress of medicine has been largely dependent on the stimulus of this dual influence.

Exhumed skeletons of prehistoric periods which bear the marks of tuberculosis provide our earliest record of the existence of the disease. The Code of Hammurabi, written more than 2,000 years B. C., indicates a possible knowledge of it. Aretaeus, in the first century A. D., gave accurate clinical descriptions of tuberculosis and suggested routine treatment similar to that employed today. Galen, the famous Roman physician of the second century, preserved the teachings of the Greek, Hippocrates, "father of medicine," and recorded his own observations. He was one of the first to employ climate in the treatment of tuberculosis, recommending the balmy zones immediately surrounding Vesuvius. No doubt Galen periodically came under the spell of the disease. He reports having had two physical breakdowns before he was twenty.

The period of the Dark Ages was characterized by twelve centuries of lethargy resulting from a combination of religious prejudices against the opening of the dead human body and a static condition of existing knowledge. The works of Aristotle, Hippocrates and Galen furnished the foundation for the renaissance of medicine in the fifteenth century, but no significant progress occurred until Sylvius, in the seventeenth century, gathered up the lost threads and added his work on the pathology of tuberculosis. Sylvius, it is thought, suffered from the disease. He stressed the importance of anatomic tubercle in the lungs and pointed the way for all great clinical teachers.

Not until 1761, a hundred years after Sylvius, can another genuine advance be recorded. Then came Auenbrugger "knocking at the human thorax." He is responsible for the fact that your doctor taps on your chest and listens to the sounds produced when you go for a physical examination. This was one of the most important discoveries in medicine. especially in diseases of the chest. Auenbrugger's publication describing the procedure he invented, called "percussion," is considered one of the greatest books in the history of medicine and marked the beginning of a new era.

Fifty years later Laennec, (1781-1826) a young Frenchman. put the cause of diagnosis forward with unprecedented rapidity. When he came upon the scene, the diagnosis of diseases of the lungs and heart was more difficult than that of any other internal organ. He revived and amplified the use of auscultation (listening to sounds within the chest) and assured his fame forever by inventing the stethoscope. With remarkable industry and conspicuous discrimination he drew up a minute history of nearly four hundred cases of disease before he was 22 years of age. These carefully tabulated case histories served as a foundation for his future researches and discoveries. In a short time he had made the most difficult diagnostic tasks relatively easy. In half the time now allotted for a medical education, Laennec, virtually without chart or compass, "observed, recorded, tabulated and communicated" practically all that is now taught with reference to the diagnosis of diseases of the thorax. He died of tuberculosis at the age of 45.



MEDICAL IMMORTALS

Successful progress in the fight against tuberculosis is made possible chiefly by the discoveries of these three men. Robert Koch (left) noted German research worker, discovered the tubercle bacillus and proved it was the cause of tuberculosis in 1882. Rene Theophile Hyacinthe Laennec (top) young French medical genius, invented the stethoscope in 1815. When only 45 he became a victim of the disease he did so much to help conquer. Wilhelm Konrad Roentgen (right) noted German physicist, discovered in 1885 what is probably the most important diagnostic aid in modern medicine—the X-ray.

The invention of the stethoscope enabled Corvisart, personal physician to the great Napoleon, to check the results of percussion in the living body. Auenbrugger may have failed to establish the value of his method because he could confirm his observations only at autopsy.

The great French teacher Louis, (1787-1872), who established clinical medicine throughout the world, correlated in a scientific way the symptoms at the bedside with the pathological changes found at autopsy and inaugurated valuable statistical methods of recording his observations. Louis who was one of the world's greatest clinical teachers, also suffered from tuberculosis. When 34 years of age he gave up private practice to pursue his clinical and pathologic investigations, the results of which he reported in a volume of 600 pages known as "Louis's Researches on Phthisis" (tuberculosis). It is impossible to estimate the value of his contribution to medical education. His spirit inhabits the wards of every well ordered hospital; his influence is evident wherever the principles of clinical medicine are taught.

And then came the discovery of the tubercle bacillus by Robert Koch in 1882. After centuries of anonymity the enemy was brought out into the open and mankind knew what it was fighting. A few years later came Koch's famous announcement of his discovery of "tuberculin" as a cure for tuberculosis. The news stirred the world. But disappointment soon followed. Use of the substance showed that its therapeutic value had been overestimated. The disappointment was compensated to some extent, however, by the adaptation of tuberculin as a diagnostic aid. Today it is considered especially valuable in detecting the presence of tubercle bacilli in children before the disease becomes active.

The next great contribution to the fight against tuberculosis was made by Roentgen, a distinguished German physicist. He was experimenting with the tubes invented by Dr. Crookes for the purpose of passing an electric discharge through a vacuum when he made the startling discovery that some mysterious rays capable of passing through solid substances impenetrable to light were given off from the tube. He named them X-rays. Today Roentgen's discovery is one of the most important weapons in the doctors' armamentarium, not only in the diagnosis of tuberculosis but of many other conditions.

Contemporaneously with Koch, a young American physician named Edward Livingston Trudeau (1848-1915) won his fight against tuberculosis in the Adirondack Mountains and in the victory discovered the importance of rest in bed as an aid to recovery. He established a sanaorium at Saranac Lake to test his belief and ecame the father of the sanatorium movement in America. His system of treatment is still the nly known method of curing tuberculosis.

One of the many honors bestowed upon him was his unanimous election in 1904 as first president of the National Tuberculosis Association. which was organized in that year "for the study and prevention of tuberculosis."

In 1907 the Christmas Seal sale was adapted as a means of raising funds and every year since then the seals are placed on sale for a penny each between Thanksgiving Day and Christmas. The movement has grown so that there are today more than 2,000 affiliated units throughout the country. Each raises its funds locally by the sale of Christmas Seals and conducts its own local program. Considerable progress has been made in reducing the death rate, but tuberculosis is still the greatest cause of death between the ages of 15 and 45. Until it is under control it is to be hoped that the American public will continue to buy and use Christmas Seals.

—Lewis J. Moorman,
American Tuberculosis Association.

## CENTRAL STATES ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

The seventh annual meeting of the Central Association of Obstetricians and Gynecologists was held at the Fontenelle Hotel in Omaha, October 10th, 11th and 12th, 1935.

The membership is selected from states having central time. To be eligible the doctor's major interest must be in obstetrics and/or Gynecology. Membership is limited to 250. The present membership is about 230. It is hoped and believed that this association is destined to become the most powerful organization of its kind in the United States.

One hundred and twelve registered. which is the largest registration at any meeting since the association was started. Almost every state on central time was well represented. This meeting was probably the most successful one of the association to date. Dr. Ralph Luikart was the local chairman of the meeting in Omaha.

Dr. Willard R. Cooke of Galveston is the retiring president. Dr. Buford G. Hamilton of Kansas City is the new president. Dr. Jean Paul Pratt of Detroit is president-elect. Dr. James Garbin of Birmingham is vice president. Dr. Ralph Reis of Chicago was reelected secretary-treasurer.

The next meeting is to be held in Detroit in October, 1936.

## MIDWEST CLINICS

The initial clinical meeting two years ago of the Omaha-Mid-West Clinical Society amply justified itself and the third one held a month ago with an attendance of nine hundred was an overwhelming success, scientifically, numerically and socially. When many hundreds of physicians gather for such a meeting they expect something for they are in earnest. The value of the ideas picked up cannot be estimated, the human contacts made are worth the time and money spent and all are better physicians and surgeons for the meeting.

All of the distinguished guests were on hand to take their part and all talked in such a way that their addresses and clinics should have been just what the practicing physician needed. All lectures by the Omaha group went off according to schedule, the crowds attending attesting to their popularity. The scientific and technical exhibits were splendid.

*Dr. Joseph Brennemann, of Chicago, opened the session with a discourse on the closed treatment of empyema being efficacious in the majority of cases in children.

Dr. J. Arthur Myers, of Minneapolis, stressed the early diagnosis of tuberculosis with tuberculin test, followed by X-rays in reactors. He told of England's inability to stamp out bovine T. B. because they did not slaughter reactors, but merely the sick animals. Sixty years ago, the incidence of T. B. in both England and United States was 1,000 per 100,000 and while this is still the condition in England, in the United States it has dropped to 39 per 100,000. Collapsing cavities in humans with pneumothorax is analogous to slaughtering cattle in stamping out T. B. He again reminded us that T. B. is a contagious disease by citing cases in which school teachers and nurses spread the disease.

Dr. W. B. Carrell of Dallas. with the aid of slides and moving pictures portrayed the use of cow horn and of internal fixation devises, removable, in the treatment of fractures.

Dr. J. R. Goodall of Montreal, a very polished gentleman, typically English, talked among other things, about placentosis, stating that a foetus can live on 25% of the placenta. This condition probably is present in our non-luetic still births. Contrary to the general belief, he stated that an infant had ten times as much fibrinogen at birth than it had ten days later. He also went into the treatment of trichomonas vaginalis, advising

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*Acknowledgment is due to The Voice, Bulletin of the Blackhawk County Medical Society, for part of this material.

lactic acid douche, two drams to the quart, followed by picric acid suppository.

Dr. A. C. Christie of Washington, D. C., talked on diagnosis and treatment of bronchiectasis, postural drainage followed by Lipiodol instillations for x-ray diagnosis, and later for treatment. Lipiodol injection technique is a simple office procedure. Spray 2% cocaine in throat every five minutes for one-half hour, then drop lipiodol over base of tongue having patient lean toward side to be treated or x-rayed. Ten cc. are usually enough for each side.

Dr. R. L. Cecil, of New York, stated that pneumonia deaths in the United States could be cut 25,000 a year with the use of serum, and had interesting charts to substantiate his contentions. Contrary to Dr. Brennemann, Dr. Cecil felt that cold vaccines are of distinct value. Dr. Cecil said, "While they are not absolutely certain, I conclude from my own experience, that in the majority of cases, they either prevent colds or lighten them. I feel that it would be fair to say that they are effective in 70% of the cases."

Dr. Udo J. Wile, Dermatologist of the University of Michigan, gave a very interesting clinic. His treatment for impetigo is to cut and scrub finger nails, get rid of crusts, clean with soap and naked hands, rather than a cloth, and apply ammoniated mercury with 2% phenol.

Dr. Edward C. Sewall, E.N.T. man from San Francisco, is a pioneer and indefatigable worker regarding problems in the radical treatment of sinus infection. He is a leader and exponent of the external approach in selected cases of sinus disease. He feels that if all sinuses were cleared up, colds would banish. He says that person with chronic sinusitis is a carrier of colds, he spreads colds among other persons, and gives himself a cold after wearing out the immunity built up by his own recent cold. Every cold is an acute sinusitis. Etiology of colds, is, in his opinion, due to a virus, which becames activated in the infection in the sinuses. In discussing the treatment for chronic sinusitis, he emphasized the fact that most sinus sufferers, except those with hay fever, are better off in summer, hence they should keep warm and out of cold winds.

Dr. Arthur B. Cecil, Los Angeles, Urologist, was very interesting. He depicted a technique for removal of T. B. epididymitis, and had moving pictures of the successful repair of hypospadias, which he concluded with the statement that it was an operation worthy of much consideration as it was the inherent right of every American boy to be able to write his name in snow.

Dr. Roy Grinker discussed the differential diagnosis of meningitis and the methods of the possible etiology in specific cases. He thinks metabolic activity and endocrinological functions are under control of central nervous system and that an important integration of visceral function takes place in the hypothalamus.

Dr. A. C. Ivy outlined the proof that a mechanism for fat and sugar inhibition of gastric secretion and motility exists and stated that a substance has been isolated from duodenal mucosa which on injection inhibits gastric secretion and motility.

Dr. Vernon C. David discussed the differential diagnosis between obstruction of the large and small bowel from the standpoint of symptomology and some of the more common lesions of the large bowel causing obstruction. He discussed caracinoma of the rectum and carcinoma of the head of the pancreas.

## LINCOLN'S ST. ELIZABETH'S HOSPITAL FALL MEDICAL CLINIC

The Fall Medical Clinic of St. Elizabeth's hospital, staff physicians and graduate nurses, was held October 11 and 12, 1935. There were 442 registrations. The outstanding innovation of the clinic was the combining of the graduate nursing staff and medical staff on a professional equality basis for the clinic program. This concept of professional relationship establishes an epoch making precedent.

The forenoon of the 11th was devoted to the following clinics given by the staff physicians:

Surgical: Cataract—Old Lesion Left Eye, Dr. L. C. Knight; Resection of Jejunum, Dr. F. M. Andrus; Hernia, Inguinal, Bilateral, Female, Drs. Roy and Clarence Crook; Transurethral Resection of Prostate, Dr. E. E. Angle; Arteriography and Bohler's Method of Handling Fracture of Os Calcis, Dr. C. H. Arnold; Cancer of Face and Mouth, Dr. D. D. Sanderson; Triangle Splint for Fracture of Humerus, Dr. James R. Flynn; Inguinal Hernia, Technique used in 600 cases without a recurrence, Dr. Czar Johnson; Non-Union Radius with Shortening, Bone Graft Operation, Dr. F. B. Hollenbeck, with Brachial Anesthesia Block by Dr. C. H. Arnold; Pedunculated Breast, Dr. G. E. Lewis; Rectal and Colonic Diseases, Wax Models, Dr. Edwin Katskee; Correction of Cross Eye, Dr. J. W. Thomas; Cholecystectomy, Dr. T. F. McCarthy; Hydrocele, Dr. E. E. Rider; Breast Amputation, Dr. B. A. Finkle; Hodgen's Splint, Dr. L. E. Marx; Eye Cases, Dr. J. P. Williams.

Obstetrical: Pelvic and Foetal Measurements by X-ray; Resuscitation of New Born, Dr. W. C. Becker; Pregnancy Test-Demonstration on Rabbit, Dr. J. J. Loomis.

Roentgenological: Intravenous Urography, Dr. Carl Kail.

Neurological: Hyperpyrexia as a Treatment, and Occupational Therapy and Hydrotherapy Technique, Dr. B. F. Williams, Dr. Rex Strader.

Medical: For this clinic seventeen hundred square feet of space adjacent to the assembly room was fitted up with booths, beds, scientific laboratory equipment, drugs and dietary material for demonstrations. In this space and the assembly room the following program was given:

Demonstration of Heart Lesions; Conduction System of the Heart; The Beating Animal Heart, Dr. Arthur L. Smith, Dr. Lewis Harris; Diabetic Treatment (Diet and Drugs), Dr. E. Reed Oakley; Arthritis Deformans Demonstration, Dr. J. J. Podlesak; Tetany Demonstration, Dr. Henry Blum; Splenomyelogenous Leukemia, Dr. Fred Coleman; Autocondensation of Tumor, Dr. Carl Kail; Oxygen Tent Demonstration, Dr. Paul J. Huber; Special Diets, Miss Josephine Wernimont, Dietitian; Iontophoresis in Arthritis, Short Wave Diathermy in Arthritis, Cold Quartz and Its Uses, Hospital; Drug Exhibit, American Pharmaceutical Association; Heart Clinic with Patient, Dr. H. J. Lehnhoff; Electrocardiographic Clinic, Dr. Edmund Zimmerer; Moving Picture of the Heart Valves in Action, Rheumatic Heart Disease Clinic, Dr. Arthur L. Smith.

A complimentary noon buffet luncheon served by the graduate nurses followed the morning clinics and as an after luncheon relaxation the nurses put on a well portrayed character sketch of the staff physicians.

The Very Rev. Msgr. L. V. Barnes gave the address of welcome and outlined the value of these clinics to physicians, nurses, the hospital and the public.

Dr. H. J. Lehnhoff presided at the afternoon program which was devoted to special clinical lectures. Dr. Harold Swanberg, editor *Radiological Review*, and member of Quincy Radium and X-ray Laboratories, Quincy, Illinois, was the first lecturer. Subject: "Radium Treatment of Benign Uterine Hemorrhage." Dr. Swanberg classified the cause of uterine hemorrhages and stated that the principal indications for radium were in changes in the uterine tissues (not pregnancy) and in new growths. He cautioned against indiscriminate use of the agent and stressed the necessity of an accurate diagnosis. His indications for radium therapy were: Malignancy, benign fibromyomata, simple functional hemorrhage, menopause and premenopausal hemorrhage, chronic metritis, subinvolution, uterine fibrosis, chronic endometritis, membranous dysmenorrhea, puberty hemorrhage, chronic endocervicitis, cervicitis and uterine and cervical polypi, contra-indications were: History of pelvic inflammation, associated pelvic disease or pregnancy, subserous or pedunculated fibroids, very large fibroids and to be used with great care in patients under thirty-five years of age. In closing he stated that in his experience and the experience of others familiar with radium it offered many advantages to the patient and physician.

The next lecturer was Dr. Roland M. Klemme of St. Louis, Mo., Clinical Professor of Neurological Surgery, Washington University, St. Louis, who discussed "Head Injuries" and gave an applicable classification and treatment. His classification was clinical rather than academic. The essential elements were: I. Massive brain damage with exhaustion of medullary centers. Prognosis grave. Operation counterindicated. II. Fracture of base of skull with special reference to care of bleeding of ear and nose; also value of lumbar puncture in this class. In the lumbar puncture the spinal manometer to be used and two needles to be placed at different levels which is his rule. III. Subdural hematoma, the remote effect and also gradual onset of symptoms. Surgical. IV. Localized brain damage with depressed fracture. Surgical. V. Depressed fractures with no neurological signs. Surgical. VI. Middle meningeal hemorrhage with ligation of vessel. Surgical. VII. Rupture of arachnoid. Operative removal of fluid under dura. VIII. Contusion and lacerations of brain, cerebral edema, with or without fracture, use of hypertonic solutions, 25% solution of magnesium sulphate for retention enema being his choice, restriction of fluid intake, interdiction of lumbar puncture in these cases and he also advised against surgical interference. IX. Simple linear fracture and scalp wounds, treated by simple repair of wound and rest in bed. He stressed the necessity of using clinical judgment, of a diagnosis, a study of the phenomenon that occurs and prolonged rest as a requisite in the treatment of all head injuries. His address left some excellent guide posts for his hearers.

Friday morning Miss Ellen Bickert, Assistant Superintendent of the Nurses Training School, welcomed the graduates. It was "Home Coming Day" for the graduate nurses.

One of the outstanding features of the clinic was the new drug room equipped with electrical refrigeration for serological products and a new Schwartz light proof cabinet for other drugs. Over 300 visitors visited this department.

A complimentary dinner given by the Sisters was served at 6:30. Two hundred physicians and graduate nurses were seated. Twelve physicians who have been in the service 50 years were guests of honor. These men who blazed the pioneer trail of medicine in Nebraska were an inspiration. The Most Rev. Bishop L. V. Kucera presided at the dinner. His introductory address was a classic. He portrayed the great role that medicine and religion have played in civilization and admonished physicians and nurses to maintain a high standard of guardianship of the physical welfare of humanity. Hon. C. E. Lounsbury of Chicago, Ill., formerly assistant states attorney of Illinois, was the dinner speaker. He gave a forceful address. After reviewing many phases of "rackets" and their insidious disintegrating effect, he enumerated some of the remedies which he believed were necessary to cure this social disease. The most effective remedy in his opinion is moral, mental and physical fitness of youth. In the last analysis, his address was an appeal to society to meet the challenge of the "racketeer" and to recognize an obligation to youth.

Saturday forenoon, October 12, was devoted to clinical lectures and demonstrations as follows:

1. Isolation Technique with demonstration by Miss Rose Scharfen and Goldie Lupton. 2. The Wagensteen Suction Apparatus by Miss Leona Williams. 3. "The Need of Post Graduate Course for Nurses," by Miss Carol Martin, Educational Director of Nebraska. Miss Martin urged nurses to be students after graduation. She said "the constant progress and great advancement in medical science make it imperative that nurses must familiarize themselves with more and more of what is being done. The real reason for making all possible advanced preparation for nursing is to make better and safer nurses."

Dr. Kellogg Speed of Chicago, Ill., Clinical Professor of Surgery, Rush Medical College, discussed "Recent Advances in the Care of Compression Fracture of the Spine." He gave a comprehensive description of the mechanism and the anatomical elements involved in the problem, emphasized the necessity of refinement in roentgenological technique, the value of the study of the heighth, contour, density and reformation of the trabecular lines in the body of the vertebra during treatment; advocated conservative and prolonged treatment by extension appliances and freedom of weight bearing to maintain alignment and reparative processes, and to prevent ankylosis resulting from the invasion of new bone formation between the anterior and lateral ligaments and into adjacent joints. In closing he pointed out the danger of handling the recently injured back and laid down the rule "keep the injured back in the supine position."

Dr. Ralph C. Brown of Chicago, Clinical Professor of Medicine, Rush Medical College gave a lecture on "Treatment of Ulcers of the Upper Gastrointestinal Tract." He stated that there is a place for surgical as well as medical procedures in the treatment of these ulcers. He showed a perfectly healed specimen of a large gastric ulcer which had been treated by him five years before and he took this occasion to state a gastric ulcer never degenerated into a malignancy. For the usual uncomplicated ulcer treatment he advised frequent feedings, complete constant neutralization of the acid contents and hot packs to the abdomen. For the severe bleeding gastric ulcer, duodenal feedings are given for several days. If nocturnal gastric hypersecretion and acidity continues another tube is passed into the stomach and while the patient sleeps aspirations are done every twenty minutes. Many roentgrams showing the course of the healing gastric ulcer were exhibited and various types and stages of ulcers in different locations were demonstrated by the same means. His address was a very instructive and practical exposition of the ulcer subject.

Dr. Wilber E. Post, Chicago, Illinois, Clinical Professor of Medicine, Rush Medical College, was the next speaker. His subject was "Disease of the Kidneys With Especial Reference to Edema." Dr. Post stated that in Bright's Disease three phases were recognized: 1. The renal phase, resulting from the damage to glomeruli of the kidney and from small blood vessels of the body, manifested by blood and casts in the urine and in general vascular disturbances. 2. The body phase, resulting from damage to the tissue cells and fluids of the body, manifested by generalized edema and profuse albuminuria. 3. The vascular phase, resulting from damage to the small blood vessels, manifested by high blood pressure and impairment of nutrition to various areas, as heart, kidneys, brain, muscles, etc. He stated that pathological processes in the "body phase" so change the tissue cells and tissue fluids that the tissues hold an abnormal amount of water and edema results and that the condition is due to the disturbance in metabolism of the tissue cells and tissue fluids. Infection and its products, mineral poisoning, severe chilling of the body, disturbed circulation and endocrine dysfunction were the causes enumerated of this disturbance of metabolism and resultant edema.

A call to the Colors—The Scarlet and Cream and the Gridiron battle of Minnesota vs. Nebraska closed the meeting.

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## THE HALF CENTURY GROUP OF PRACTITIONERS

Dr. Czar Johnson, Lincoln, did a valuable piece of research work in listing Nebraska physicians who have been in service over fifty years. This work was done for the purpose of honoring them at the St. Elizabeth hospital clinics banquet in October. A dozen of the list following were present:

F. W. Winter, Adams; G. O. Remy, Ainsworth; E. M. Tyler, Auburn; E. D. Thurston, Burwell; C. D. Evans, Sr., Columbus; T. J. Andrews, Fairbury; H. L. Clark, Fairbury; C. S. Boggs, Filley; A. R. TouVelle, Firth; J. V. Beghtol, Hastings; Theo. Lightner, Hastings; C. Van D. Basten, Kearney; J. L. Bennet, Kearney; A. D. Cameron, Kearney; M. A. Hoover, Kearney; F. J. Rosenberg, Lexington; E. E. Aukes, Lincoln; B. F. Bailey, Lincoln; S. N. Bentley, Lincoln; M. H. Everett, Lincoln; L. F. Polk, Lincoln; F. A. Long, Madison; Z. L. Kay, McCook; P. H. Salter, Norfolk; Eleanor S. Daily, Omaha; Stella E. Jacobs, Omaha; C. A. Kenner, Omaha; J. M. Keys. Omaha; R. S. Frecke, Omaha; J. T. Mathews, Omaha; Geo. H. Whiteside, Omaha; I. C. Wood, Omaha; J. W. Youngman, Paxton; J. C. Wilson, Pleasant Dale; I. J. Downing, Rising City; J. C. Shepherd, Rulo; H. B. Cummins, Seward; Geo. J. Rubleman, Tecumseh; H. H. Grosback. Wauneta; Chas. C. Gafford, Wymore; J. P. Lord, Omaha.

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## EDITORIAL PARAGRAPHS

Dr. James Ewing is quoted as suggesting that Hodgkin's disease is probably a form of avian tuberculosis.

We recently heard it stated with authority that duodenal ulcer is practically always benign; peptic ulcer often malignant.

And let us stop briefly to explain right here that mucus is the correct spelling for the noun, mucous for the adjective.

The *British Medical Journal* is quoted as saying that all children with umbilical pain followed by vomiting have appendicitis.

In California the pedestrian has the right of way crossing the street and all cars either stop or slow down to let him pass. This seems sensible.

It is stated in *Science News Service* that Chinese physicians, mostly trained in America, are replacing foreign doctors in hospitals of Canton, China.

Editor Morris Fishbein is authority for the statement that there are 135 national medical societies. Seems unbelievable, but of medical societies there seems no end.

It is interesting to a physician on a jaunt to find some of the 2,500 babies at whose birth he presided as the good genius, scattered in all corners, as at San Diego, Pasadena, Long Beach.

The executive secretary has been on the job since early in October, has spoken before a number of medical society meetings, and has reorganized two dormant medical societies.

Mumey in an article on Medical Russia in *Colorado Medicine* states that the Russians use splenic extract in the treatment of carcinoma on the theory that cancer does not attack the spleen.

The American Medical Association has let a contract to remodel and modernize the headquarters buildings at 535 North Dearborn St., Chicago, and add two additional stories and a pent house auditorium.

Well developed "Fall" clinics have made a place for themselves and fill a great need fully appreciated by an awake profession as is evidenced by the interest in the several held in this state during recent weeks.

Neurosis is a functional disorder, presumably of the nervous system, for which no cause is known or no lesion is found on examination—for instance, epilepsy, migraine, hysteria, writer's cramp, spastic constipation.

The American College of Surgeons has collected over 24,000 cases of known cures of early treated cancer—cures that have lasted five, ten, fifteen years. Skin cancer is almost 100% curable, says the New York Cancer Committee.

In this country the matter of consent to an operation often comes up to plague the surgeon. In England, so we are told, the patient on entering a hospital signs a paper giving the surgeon full freedom to do anything he thinks best for the patient.

Growers of apples, which have been sprayed with arsenate of lead, can, by washing the apples in a dilute acid solution, insure consumers against the insidious effects of ingesting varying amounts of lead or arsenic, says the *Kentucky Bulletin of the Department of Health.*

Of the sixteen who took the October Post-Graduate Course in Pediatrics at Washington University, St. Louis, four were Nebraska physicians: Dr. Arthur W. Anderson, Lexington; Dr. Hall Humphrey, Dakin; Dr. Emma Robbins, Lincoln; Dr. Emily F. Rorer, Norfolk.

A new service-medical manuscript work is offered to physician-authors and those who want library research, by a well known lady of years of experience in the office of one of our former foremost surgeons and medical writers. The uniqueness of this proffered service impells us to call attention to it. See Classified Ads.

Two-day institutes were sponsored by the Nebraska Tuberculosis Association in Norfolk, Beatrice, Grand Island and North Platte in mid-October. Clinical tuberculosis was stressed in the institutes and special instruction was offered to nurses for the care of the tuberculous. The meetings were well attended and it is believed did much good.

Referring to the dust storms in Kansas last spring Public Health Reports for October 4, states: There is no evidence that pathogenic organisms were actually carried by the dust. The dust acted as an irritant to the mucous membranes of the respiratory tract. Laboratory examinations have shown the dust to have a high silica content.

Readers will be surprised to learn that the annual meeting for 1936 will be held as early as April 7, 8, 9, for we are so used to May meetings. The meeting of the American Medical Association at Kansas City is scheduled for May 11 to 15 and it seemed necessary to have our meeting in advance of that and far enough in advance so as not to conflict in any manner.

Dr. Joseph Colt Bloodgood, widely known Baltimore surgeon and propagandist for the early recognition and control of cancer, died suddenly of coronary thrombosis, October 22. He will be remembered by Nebraska physicians who attended the cancer clinics given in Omaha and Lincoln within recent years. Few men have been as persistently enthusiastic in their work as Doctor Bloodgood.

An esteemed member states that "the discussion given my paper at our last meeting was the most flagrant example of unbelievable discourtesy I ever witnessed. No one asked for a copy of my paper previous to the meeting. One man had a longer discussion and more cuts than the original paper and two men discussed it without taking the trouble to come around in time to hear it read."

Acclaimed as one of the men who have accomplished much in the promotion of public health and the saving of human lives, as a result of work in Biological Science, Dr. H. K. Mulford was honored with a dinner in celebration of his Golden Pharmaceutical Anniversary at the Union League, Philadelphia, on the evening of October 31st, 1935, by a group of distinguished scientists, physicians, chemists, pharmacists and educators.

## OBITUARY

**Francis A. Graham,** Lincoln, Nebr.; native Nebraskan; Omaha Medical College, 1889; practitioner in Lincoln since graduation; prominent in medical and surgical work of Lincoln; together with his wife, Dr. Alice Winnifred Graham, conducted a clinic for a number of years; a man of outstanding personality, liked by all; member Nebraska State Medical Association; died of general septicemia, after an illness of six months, October 31, 1935, aged seventy-two years.

A widow survives.

**Rachel Watkins Long,** Holdrege, Nebr.; native of Pennsylvania; University of Illinois, College of Medicine, 1906; practicing physician at Holdrege for seventeen years; following graduation was attending physician at Peoria State Hospital, four years; in general practice at York several years; in general practice in Chicago in the early war days, where she taught Red Cross War nurses for overseas work; later sent to Washington where she served as Dean of Medicine at Columbia Training camp with the rank of Colonel; in 1918 married Mr. Charles A. Long and went to live at Holdrege; prominent in Legion Auxiliary, Red Cross and church work; a commentator says: "She has given much and asked little. Her life was lived for the good she could do for others. She took an active interest in the outstanding community endeavors"; died September 29, 1935, after an illness of five months, aged sixty years.

A husband survives.

**Evert H. Ostling,** Lewellen, Nebr.; native of Sioux City; State University of Iowa, College of Medicine, 1919; after a period of practice at Arthur, Iowa, established a practice at Lewellen about 14 years ago; in the sanitary division of the army during the World War; prominent in the American Legion; member Nebraska State Medical Association; a man of faithful attention to his duties and of pleasant sociability; died September 28, 1935, of septicemia, aged about forty-four years.

A widow and daughter survive.

**Edward C. Lynch,** Montebello, Calif., Creighton University College of Medicine, 1906; practitioner during the twenties at Litchfield and North Platte; in California since 1929, doing OALR; died September 18, 1935, aged about fifty-one years.

A widow, son and three daughters survive.

**Ralph G. Cressman,** Stockton, Calif., native Nebraskan; Bennett Medical College, Chicago, 1905; in practice at Oglesby, Ill., for about ten years previous to the World War; in medical service with the army flying corps during the war; in practice in Hastings for about ten years subsequent to the World War; since 1927 in Stockton, Calif.; former member Nebraska State Medical Association; died suddenly October 12, 1935, aged about fifty-five years.

A widow and two children survive.

**John Sears,** El Paso, Texas; native Nebraskan; Creighton Medical College, 1909; following graduation engaged in practice in North Loup, Scotia, Nebraska, and Winnefred, Montana; in medical corps of the army during the entire period of the war; following the war took a position with a Mexican mining company and moved to El Paso, Texas; died October 4, 1935, aged about forty-eight years.

A wife and three daughters survive.

**Lucien L. Noble,** Holmesville, Nebr.; Northwestern Medical College, St. Joseph, Mo., 1894; veteran physician at Holmesville; died November 14, 1935, aged about sixty-four years.

A widow, daughter and two sons, of whom one is Dr. Roy Noble of Beatrice, survive.

**James P. Prendergast,** Steinauer, Nebr.; Creighton University College of Medicine, 1908; member Nebraska State Medical Association; died November 15, 1935, aged fifty-two years.

Surviving are a widow, five daughters and three sons.

**Herbert C. Sumney,** Omaha, Nebr.; Jefferson Medical College, 1890; noted dermatologist; in practice in Omaha forty years; an enthusiastic moose and other big game hunter; member Nebraska State Medical Association and of national dermatological and urological societies; a man of friendly disposition liked by all; senior member of the firm of Sumney and Hellwig for thirty years; died of cerebral hemorrhage November 21, 1935, aged sixty-five years.

A widow survives.

**Fay E. Gaither,** Nemaha, Nebr.; Creighton Medical College, 1906; practitioner at Nemaha for several years; a man of fine character and high ideals; died November 11, 1935, aged fifty-four years.

A widow, daughter and son survive.

## CORRESPONDENCE

American Society for the Control of Cancer
November 11, 1935.

My Dear Dr. Long:

I wish to thank you most sincerely both individually and on behalf of the Society for the helpful interest which you have shown in publishing Dr. Rector's cancer survey of Nebraska in the November number of your State Medical Journal. This is a progressive and worthwhile step and shows that Nebraska is going to take its place among the leading states in the field of cancer control. I shall take pleasure in showing this publication to our Executive Committee at its December 4th meeting and know that they will join me in hearty thanks.

Very sincerely yours,
C. C. LITTLE,
Managing Director.

### Errors in Rector Report

Dear Dr. Long:

A number of us have read with interest the cancer number of the Journal of the Nebraska State Medical Association for October. The issue is timely and well edited.

There are some inaccuracies to which we wish to call your attention:

It is stated that Bryan Memorial Hospital is not approved for Interne training. This information is conveyed in a prominent manner with a large asterisk. This hospital has been approved for interne training for more than a year and has two internes. This error comes about by the delayed publication of a report without correction.

Because of rapid changes in medicine, hospitals have been making improvements in equipment and technique. At Bryan Memorial Hospital we have a new General Electric Shock-Proof, oil-cooled tube stand and a 240 K. V. constant potential transformer which is being used for the treatment of malignancies and other pathological conditions requiring deep x-ray therapy. This has been in use for more than 18 months but it does not appear in the report. Again we feel that the report has appeared so late that a correction should have been made in justice to the hospital.

We asked Dr. Rector to make this correction last spring and he said that he would. We presume that other hospitals may have the same criticism to make on delayed reports.

The Executive Committee of our Medical Staff has instructed me to write you relative to the above matters and to request you to correct same.

Very sincerely yours,
EARL B. BROOKS,
Secretary of Medical Staff,
Bryan Memorial Hospital.

## AUXILIARY NEWS NOTES

The executive board of the state auxiliary met October 29, at the Fontenelle Hotel, Omaha. 20 members attended. Mrs. C. C. Tomlinson, president, presided. After an introductory address in which Mrs. Tomlinson presented much interesting information concerning national and state auxiliary affairs, committee chairmen were introduced. Brief talks were given by Mrs. Earl Farnsworth, organization chairman; Mrs. H. W. Benson, public relations, and Mrs. C. W. Pollard, program. Mrs. Pollard presented an exhibit of health literature issued by various lay organizations and those issued by the A. M. A. with the suggestion that auxiliary members recommend the use of the latter as the authentic health education literature. Mrs. Henry R. Miner aand Mrs. Morris Nielsen took part in a discussion of financing an educational campaign. A motion was passed, subject to the approval of the advisory board, making our present health program official.

Following the meeting of the executive board Mrs. C. C. Tomlinson, president of the state auxiliary, was hostess at a beautifully appointed luncheon at the hotel for members of the board. Covers were marked with corsages of violets and table decorations were carried out in complementary colors. After luncheon board members attended Dr. Christie's lecture sponsored by the Omaha-Douglas County Medical Auxiliary.

Dr. Arthur C. Christie of Washington, D. C., who was in Omaha attending the Mid-West Clinical society, addressed the wives of doctors at a meeting Tuesday afternoon, October 29, at the Fontenelle Hotel. Mrs. J. Harry Murphy, president of the auxiliary, introduced Drs. J. P. Lord and G. A. Skinner who spoke briefly of Dr. Christie's medical career and accomplishments. Dr. Christie, in his talk appealed to doctors' wives to assist in disseminating information concerning foundations which would lower the standard of medical care. Doctors have been accustomed to work quietly, he said. In thirty years they have increased the average length of human life twelve years and have said little about it. But an active campaign is necessary when the profession is threatened with the establishment of methods of practice derogatory to its ideals. 150 doctors' wives attended an auxiliary tea after Dr. Christie's talk. Tables were centered with bowls of gold and rust pompom chrysanthemums and gold tapers. Mrs. Murphy was assisted by members of her courtesy committee under the chairmanship of Mrs. W. H. Taylor.

Mrs. C. C. Tomlinson, auxiliary state president, was in the receiving line at the state meeting of parents and teachers, Tuesday, Oct. 22, at Columbus. She will also attend the national board meeting at Chicago, November 15, as state president from Nebraska and as national recording secretary.

Mrs. C. W. Pollard, state program chairman, is a member of the National Health Education Committee of the North Central district. Mrs. Z. E. Holcombe of Kentucky, chairman, has undertaken to notify auxiliary presidents in her district of radio talks by A. M. A. speakers and is asking that they notify as many lay organizations as possible of the dates of these broadcasts.

An Omaha doctor's wife is frequently seen carrying a magazine under her arm. When asked, "What are you reading?" she replies promptly, "Hygeia, a magazine which should be in every home."

Recent audiometer tests in Omaha schools show that 6% of the children have impaired hearing.

The Women's auxiliary to the Omaha-Douglas County Medical Society held its opening meeting and tea at the home of Mrs. J. F. Langdon. Committee chairmen outlined plans for the year and Mrs. C. C. Tomlinson, state president, talked on national and state objectives stressing particularly the desirability of increased membership. Mrs. George Newhaus gave an account of a piece of public relations work in her local parent teachers' association which illustrated the value of Auxiliary membership on boards of other organizations.

Mrs. Rogers N. Herbert, president of the Woman's Auxiliary to the American Medical Association, gave the address at the annual luncheon of the Woman's auxiliary to the southern medical association at St. Louis, Wednesday, Nov. 20. On November 5, Mrs. Henry R. Miner, Chairman of exhibits American Medical Auxiliary, was Mrs. Herbert's guest for luncheon at the Muehlbach Hotel at Kansas City where she met with the convention committee to formulate plans for the June, 1936, meeting.

At the annual luncheon, May 15, 1936, the auxiliary to the Nebraska State Medical Association celebrated its tenth anniversary. On that occasion Mrs. F. A. Long, organizer and first president, told of the organization of the auxiliary and gave outstanding incidents of its history. Mrs. Long's address in part appears in this issue of the Journal.

The absence of Mrs. F. A. Long was remarked at the executive board meeting of Oct. 29. Mrs. Long is visiting in California which accounts for it. This is the only meeting she has missed since the organization of the Nebraska State Medical Auxiliary. The following board members were in attendance: Mesdames C. C. Tomlinson, Herman Johnson, D. D. Stonecypher, W. H. Harvey, C. W. Pollard, Floyd Clarke, F. W. Heagey, J. M. Woodward, Elmer Hansen, Earl Farnsworth, C. L. Hustead, Henry R. Miner, A. P. Overgaard, J. Harry Murphy.

The first fall meeting of the Woman's Auxiliary of the Lancaster County Medical Society was held November 6, at the home of Mrs. George H. Walker. The president, Mrs. J. E. M. Thomson, presided. Two important motions adopted were: that the society put the magazine, Hygeia, in the public schools of our city, and that we have regular monthly meetings. A committee was appointed to arrange programs and time of meetings. Miss Lois Platt, a psychiatric nurse of the Social Welfare Society, was the speaker. Her discussion of the work of Mental Hygiene was most interesting and instructive. Following the program, forty-five members were invited into the dining room for tea by the social committee. Mrs. J. E. M. Thomson presided at the tea table, lovely with lace cover, chrysanthemums and copper service.

Those who attended the Southern Medical meeting at St. Louis are: Dr. and Mrs. E. W. Hancock, Dr. and Mrs. E. S. Wegner, and Dr. and Mrs. John C. Peterson.

## HISTORICAL SKETCH OF THE AUXILIARY TO THE NEBRASKA STATE MEDICAL ASSOCIATION*

A few doctors' wives usually attend the A. M. A. meetings. Some were present when the auxiliary to the A. M. A. was organized. It was not long before Nebraska was represented on the official board. Contact with the presidents, the official board, the committees, and the auxiliary members from every state in the union gave these members a broader outlook and a desire to have an auxiliary in Nebraska.

Omaha, Lincoln and Hastings, the three cities that entertained the medical meetings, always welcomed the wives and made special arrangements for their entertainment. We made a few friends but we needed closer relations with one another. We needed to know one another better. Auxiliary organization was often mentioned but it was not until we met in Lincoln, at the time of the state medical meeting, May, 1925, that a tentative organization was made. This meeting was called by Mrs. J. E. M. Thomson, Lincoln. At the luncheon, Mrs. F. A. Long, Madison, was elected president and Mrs. Clarence Rubendall, Omaha, secretary-treasurer. A committee to draw up a constitution was appointed and met during that summer at the home of Mrs. Thomson, Lincoln. A committee was also appointed to solicit membership and it met with the constitution committee. The president met with these committees and learned it was evident that doctors' wives all over the state were interested.

The first annual meeting of the Auxiliary was held at Omaha, May, 1926. Having no constitution to guide the officers, the entire responsibility of arrangements for this meeting fell on the president and secretary. Omaha having two medical schools, they appointed the wife of a faculty member from each school and the wife of a doctor connected with neither school to help. This proved to be a harmonious arrangement. Not one woman asked to act on a committee declined to serve. With this hearty cooperation, the president felt that success was assured for this first meeting.

The president had three objectives in mind in planning the program; business, social, and educational. The program was as follows: Reception, May 11, 4:00 p. m. in the room of the Fine Arts Society. Luncheon at the Blackstone Hotel, May 12, at 1:00 p. m., following a drive around the city and a visit to The Harriet Munroe Home for Crippled Children. The reception at the Fine Arts room gave us the social as well as the educational feature. The visit to the Crippled Children's Home gave us an insight into the wonderful work carried on by our doctor husbands and nurses. The luncheon was a friendly get together followed by a program of music and the business meeting. Not having any past presidents, the wives of the past presidents of the medical society were introduced and tribute paid to them.

The following request had been sent to the House of Delegates:

"The Woman's Auxiliary to the Nebraska State Medical Association was tentatively organized last May in Lincoln. We now come to you for permission to complete this organization at this our first annual meeting.

"With your permission, we will stress the spirit of friendliness among doctor's families; an Auxiliary to every county medical society; a copy of Hygeia in every public library and rural school; cooperation with the anti-tuberculosis society; physical examination of every member of the doctor's family on his or her birthday."

Dr. Palmer Findlay brought greetings from the House of Delegates and granted jurisdiction to the Auxiliary to complete its organization. Greetings were extended from the state association by its president, Dr. H. J. Lehnhoff and from Douglas county by Dr. Adolph Sachs who presented an immense bouquet of roses to the president.

The constitution was read and adopted. The Nebraska Auxiliary was now fully organized and ready to work. County Auxiliaries have been organized and are doing excellent work along health lines. School children are given lunches, underprivileged children are clothed and fed, much attention is given to those with defective eyesight and hearing. Preschool clinics, with follow-up work starts the child to school in good health. In some hospitals reading matter is supplied by Auxiliary members.

Most excellent work has been accomplished by members working through other organizations such as the Parent-Teachers' Association, Woman's Clubs, churches, and civic organizations. The Auxiliary is binding the members closer together, and is the connecting link to the Woman's Auxiliary to the American Medical Association. The greatest good has come from friendships made by working together and the great interest aroused in the husband's work.

Nebraska has twice been honored by having members elected as vice president of the Auxiliary to the A. M. A. We have had members on the national board of directors. Mrs. Miner is at present a member of the national committee on exhibits. Mrs.

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*Address, in part, given by Mrs. F. A. Long on the celebration of the Tenth Anniversary of the Nebraska Auxiliary in Omaha, May 15, 1935.

Tomlinson was elected recording secretary at their ast meeting. Mrs. Rubendall represented Nebraska on the national board while state president as did Mrs. E. W. Rowe and others. Mrs. Pollard has received many favorable notices on her fine program outlines that she prepared for Nebraska County Auxiliaries. Vice presidents of the national auxiliary were Mrs. F. A. Long and Mrs. A. F. Jonas. Altogether Nebraska has been represented on the board of he American Medical Auxiliary many years.

The first president has been made a life member of the board of directors of the State Auxiliary with full voting power; by many she is called, "The Dean of the Auxiliary." She has reason to be proud of our Auxiliary and looks forward to the time when every doctor's wife in Nebraska will be proud to be an active member of the Auxiliary.

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## PROGRAM OF THE LANCASTER COUNTY MEDICAL SOCIETY FOR THE SOCIETY YEAR

December 3, 1935

President's Guest

December 17, 1935

Annual Business Meeting

January 7, 1936

"Personal Experiences in Allergy"....Dr. H. B. Mueller
"Ileitis or Appendicitis?"....Dr. E. E. Rider

January 21, 1936

"Childhood Tuberculosis" ....Drs. E. S. Wegner and E. W. Hancock
"The Cause of Death in a Series of Patients With Fracture of the Hip"....Dr. H. Winnett Orr

February 4, 1936

Ladies' Night

February 18, 1936

"Common Skin Diseases of Interest to the General Practitioner"....Dr. J. J. Snipes
"Bone Tumors"....Dr. George W. Covey

March 3, 1936

"Alcoholism and Psychosis"....Dr. Paul Royal
"Surgical Indications in Breast Tumors"....Dr. Harry Everett

March 17, 1936

"Neurological Features Associated with Anemia"....Dr. E. Burkett Reed
"The Fundus Picture"....Dr. J. W. Thomas

April 7, 1936

Joint Program with Lancaster County Dental Society

April 21, 1936

Visiting Doctors' Program (By Representatives of Butler, Saunders and York Counties)

May 5, 1936

"Post-Traumatic Sequelae Following Head Injuries"....Dr. K. S. J. Hohlen
"Operative Lengthening of the Lower Extremities"....Dr. Fritz Teal

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## THE SOCIETIES

The **Dawson County Medical Society** met at Cozad, October 7. Dr. H. E. Dorwart, Lexington, gave a paper on "Postoperative Atelectasis."

The **Southwest Nebraska Medical Society** held a meeting October 10 at McCook. The program followed a banquet. Mayo clinic talent was the feature of the meeting:

"Hypertension," E. V. Allen, M. D., Rochester, Minn.

"The Differential Diagnosis of Tumors of the Mediastinum," Fred Gaarde, M. D., Rochester, Minn.

The autumn meeting of the **Third Councilor District Medical Society** at Pawnee City, October 23, brought out several new features in medical society work.

A graduate symposium by members of the Creighton Medical College faculty on "Arthritis" was put on by Drs. Russum, Barry and Sucha.

A potpourri of lantern illustrations of Arteriography, a brief presentation of slides showing the new and successful treatment of Berger's Disease, a reel pertaining to the International Goiter Conference and Clinic at Switzerland, and closing with a few reels of Alaskan scenery made this year, was presented by Dr. Charles H. Arnold, Lincoln.

A banquet of some proportions was served in the early evening.

Dr. J. C. Waddell, Beatrice, was elected president.

At a meeting of the **Buffalo County Medical Society** in Kearney, October 17, Dr. Claude Selby and Mr. M. C. Smith, newly appointed executive secretary, talked about the organization problems of the state association.

The **Northwest Nebraska Medical Society** was reorganized after a siesta of a year, at the Blain hotel in Chadron. Dr. L. G. Gant, Gordon, is president; Dr. O. L. Seng, Hay Springs, secretary-treasurer; Dr. S. J. Broz, Rushville, delegate.

The **Platte County Medical Society** presented the following program November 14, following a dinner at the Thurston hotel, Columbus:

Dr. Claude T. Uren, "Acute Infection of the Middle Ear and Mastoid."

Dr. Wm. H. Stokes, "Treatment of Some of the More Common External Diseases of the Eye.

At a joint meeting of the **Ninth and Tenth Councilor Districts Medical Societies** held at Holdrege, November 7, Dr. C. A. Selby of North Platte, president of the Nebraska State Medical association, and Dr. George Covey of Lincoln, president-elect, were the principal speakers.

M. C. Smith of Curtis, executive secretary of the association, spoke on medical relationships. Other speakers were Dr. E. C. Foote of Hastings, Dr. J. E. M. Thomson of Lincoln, Dr. D. W. Kingsley of Hastings, Dr. Lucien Stark of Norfolk, Dr. M. R. Wilcox of Holdrege, Dr. B. R. McGrath of Grand Island, Dr. C. K. Gibbons of Kearney and Dr. H. S. Andrews of Minden.

The 15th Annual Meeting of the **Seventh Councilor District Medical Society** of Nebraska met in Harvard, September 19, and more than fifty progressive physicians spent the day in discussions of matters pertaining to their profession under the guidance of several of the most distinguished medical and surgical authorities in the state. Dr. Chas. Nutzman of Harvard is president of the association and the program arranged by him featured an address by Dr. George W. Covey, president-elect of the State Medical Association, of Lincoln. Other speakers were: Dr. Nielsen, Supt. of the state hospital for the insane at Ingleside; Dr. H. E. Harvey, of Lincoln; Drs. John F. Allen, Robert D. Schrock and John R. Nillson, all of Omaha.

In the selection of officers for the current year, Dr. Chas. Nutzman of Harvard was named president, Dr. R. F. Becker, of Byron, secretary.

An elaborate banquet closed the meeting.

The **Custer County Medical Society** held an interesting session at the Arrow hotel in October, at which time fifteen physicians from this section were in attendance.

Following dinner, which was attended by both the doctors and their wives, a business session was held. The greater part of the evening was occupied by M. C. Smith, of McCook, who is now executive secretary of the Nebraska Medical association.

Mr. Smith outlined past accomplishments for the medical profession gained through the activities of their associations. He discussed matters of vital interest to the medical profession at this time and projects which the association expects to develop in coming months.

The meeting had practically a hundred per cent attendance of Custer county doctors.

The **Otoe County Medical Society,** October 14, sponsored a Cancer program put on by Dr. H. B. Hunt and Dr. James F. Kelly, Omaha.

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## HUMAN INTEREST TALES

Dr. H. B. Cummins, Seward, is seriously ill.

Dr. H. A. Blackstone has moved from Gurley to Lewellen.

Dr. and Mrs. Rudolph Rix recently motored through the Ozarks.

Dr. W. H. Taylor, Omaha, has become head of the local Kiwanis club.

Dr. John Clements, formerly of Elmwood, is located at Wrangell, Alaska.

Dr. and Mrs. A. E. Stuart, Cedar Bluffs, visited in Colorado during fall.

Dr. C. A. Lutgen, Auburn, has become president of the local Kiwanis club.

Dr. Kirby McGrew, former Ord physician, has located at Hayes Center.

Dr. R. S. Wycoff, Lexington, spent his vacation in four mountain states.

Dr. Lester Krotcher, a Wayne product, has located at Coeur d'Alene, Idaho.

Dr. Theodore Peterson, Holdrege, underwent an operation during the fall.

Dr. John Hubenbecker of Morse Bluffs is reported ill in an Omaha hospital.

A program to finance a new 5-bed hospital at Wahoo is well under way.

Dr. Morris Nielsen, Blair, was a patient at an Omaha hospital in October.

Dr. and Mrs. R. C. Panter, Dorchester, spent a month at Hackensack, Minn.

Dr. C. L. LeMar, for many years in practice at Osceola, has moved to Bradshaw.

Dr. Victor E. Levine has returned from his third research expedition to arctic Alaska.

Dr. James Smrha, son of Dr. V. V. Smrha, Milligan, has located at Cedar Rapids, Iowa.

Dr. and Mrs. John B. Potts, Omaha, recently returned from a prolonged stay in California.

A medical kit stolen from Dr. W. W. Hombach, Grand Island, was recovered in Julesburg, Colo.

Dr. and Mrs. F. S. Owen, now residents in Montecito, California, visited Omaha friends recently.

Members of the Women's Medical Society held a picnic at Arbor State Lodge early in November.

Dr. H. R. Stimson, hailing from Chicago, has become associated with Dr. C. D. Williams at Genoa.

Dr. Glen D. Whitcomb, Omaha, has been appointed physician to the Institution for the Deaf and Dumb.

Dr. L. E. Dickinson, Ravenna, returned from a hunting trip to Wyoming, bringing a 750 pound elk.

Dr. Charles Probst, formerly connected with Dr. M. B. Wilcox at Holdrege, has located at Aurora, Ill.

Dr. and Mrs. Charles Lucas, Shelton, spent the month of November in Los Angeles with their daughter.

Dr. W. R. Blume for several years associated with Dr. H. S. Andrews, Minden, has located at Sioux City.

Dr. Walter Graham, formerly of Decatur, has become associated with Dr. Irving S. Thompson, West Point.

Dr. H. H. Humphrey, Daykin, is taking a six weeks postgraduate course at Washington university, St. Louis.

Dr. and Mrs. M. S. Moore, formerly of Gothenburg, now of Los Angeles, visited in the state during October.

Dr. T. Y. Dorwart, San Pedro, Calif., former Lexington and Elm Creek physician, visited in the state recently.

Dr. Arbor D. Munger, Lincoln, was recently elected president of the southwest branch of the American Urological society.

Dr. A. G. Lueschen, formerly a Columbus physician, now located at Los Angeles, visited in and about Columbus recently.

Dr. H. N. Boyne of Omaha read a paper before a recent meeting of the American Dental Association held in New Orleans.

Dr. G. G. Henning, for about three years in practice in Norfolk, has become associated with Dr. Q. C. Fuller at Milford, Iowa.

Dr. and Mrs. F. H. McCaw, Colon, with their friends celebrated their twenty-fifth wedding anniversary the latter part of September.

Dr. S. E. Overmass, Gordon, has retired from practice to look after his ranch interests and is succeeded by Dr. L. G. Gant.

Dr. Eric Pfeiffer, Wilbur, has taken active service in the medical corps of the army and will be stationed at Ft. Des Moines.

Dr. J. A. Tamisea, Omaha, was elected president of the Aero Medical Association of America at a meeting held at San Antonio.

Dr. Palmer Findley, Omaha, was a guest speaker at a medical convention at Oklahoma City last month and spoke nine times in two days.

After serving York county twenty years as county physician, Dr. J. C. McKinley resigned and went to Kansas City for an indefinite stay.

Dr. Joseph Kuncl, Alliance, was elected president of the Nebraska Junior Chamber of Commerce at the recent convention held at Alliance.

Dr. Paul Thorough, Syracuse, was elected a Fellow of the American Congress of Physical Therapy at the recent meeting at Kansas City.

Dr. D. G. Griffith, superintendent of the Lincoln State hospital, recently spoke on mental ailments, before the Nebraska City Rotary club.

Dr. E. R. Hayes, formerly of Falls City, more recently of Omaha, has become medical director of research for the Church and Dwight company.

Dr. and Mrs. F. H. Morrow recently went to Los Angeles, from which place the doctor went to the College of Surgeons meeting at San Francisco.

Dr. L. N. Kunkel, Weeping Water, is credited with valuable archeological work, having uncovered remains of an Indian house thousands of years old, near Weeping Water.

Dr. T. Y. Dorwart, who some time ago went to the west coast to practice, has returned to Lexington and will be associated with his brother, Dr. Harry E. Dorwart, Lexington.

The Deans of the two Omaha medical schools, Dr. C. W. M. Poynter and Dr. Bryan M. Riley, attended the Association of American Medical Colleges at Montreal, the first days of November.

Dr. D. T. Quigley and Dr. H. E. Eggers, Omaha, while on a trip to McCook attending the Southwest Nebraska Medical Society, skidded on icy pavement and landed in the ditch, both men painfully injured.

Dr. Joseph McMartin, Omaha, was honored by the Sisters of St. Francis, tendering him and the staff of St. Joseph's hospital a dinner on the completion of Dr. McMartin's twenty-five years of service with the hospital and Creighton University.

Dr. H. W. Orr, Lincoln, was honor guest at a dinner given by the Chicago Orthopedic Society, November 8. He also operated on two cases of compound fracture at the Cook County hospital, demonstrating the Orr method for the benefit of the Orthopedic society.

Work has commenced on the construction of the Lexington Community hospital. This will be a twenty-bed hospital, brick, colonial in style and will represent an investment of approximately $20,000. The hospital is made possible by stock subscribed by some 150 prominent citizens of Lexington and surrounding country.

# THE NEBRASKA STATE MEDICAL JOURNAL

ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

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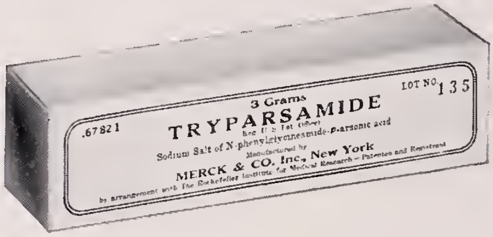
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEMPERATURE (Mean monthly—40-year average) | | 49.7 | 52.2 | 57.5 | 54.3 | 71.4 | 77.4 | 82.7 | 69.7 | 79.2 | 68.1 | 57.5 | 49.8 | |
| RAINFALL (In inches—40-year average) | | 8 | 96 | 81 | 32 | 14 | 23 | 24 | 2.46 | 10 | 6 | 76 | 1.09 | Total 11.57 |
| HUMIDITY Monthly (40-year average) | A.M. | 61 | 55.6 | 44.8 | 40.4 | 28.4 | 29.3 | 54.3 | 57.3 | 47.1 | 46.8 | 57.1 | 74.2 | Aver 49.5 |
| | P.M. | 35.3 | 27.7 | 22.4 | 22.6 | 15.9 | 17.7 | 36.7 | 35.7 | 29.0 | 26.5 | 41.1 | 48.1 | 29.9 |

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Vol. 20 Norfolk, Nebraska, December, 1935 No. 12

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